

EXERCISE NUMBER

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*of the association for physical
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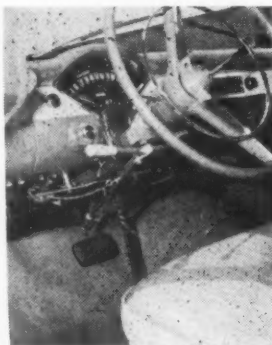
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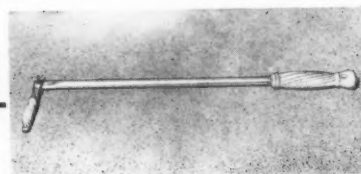
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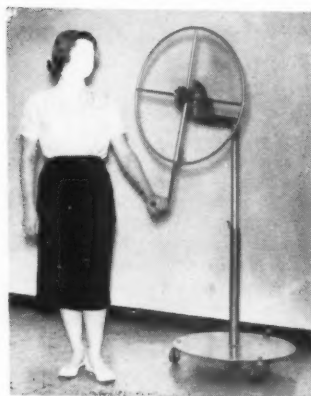
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CORRECTIVE THERAPY FOR THE NORMAL AGING PERSON

C. H. McCLOY, Ph. D.*

The last twenty years has greatly increased the number of aging people. In the United States, the average age at death in the year 1900 was 48 years for men and 51 years for women. In 1950 it was 65 years for men and 70 years for women. In 1956 it is markedly higher. The contribution, first of the sulfa drugs, and still more recently the anti-biotics, has resulted in decreases in organic damage at all ages, and in the prevention of numerous deaths which were formerly inevitable in the aging population.

The number of people in the United States over 65 years of age is increasing rapidly. In 1886, the year the writer was born, 3.7% of the population were over 65. In 1950 the percentage was 9%. In 1950 in the State of Iowa, in which the writer lives, it was 11%. By the year 2000, it is estimated that there will be at least 15% of the population in this country over 65 years of age.

In 1930 there were 10.9% of the workers in the Ford factory in Detroit who were 50 years of age and older. In 1950 there were 41.5%.

There is a tendency in many countries to retire persons who are over 65 from working. This, with the government payments of social security, can soon come to be an overwhelming tax burden if this trend towards the survival of more old people continues, and if all were to retire at 65. It would seem to the writer that there is a need to keep people from deteriorating physically so that they can work productively for many more years. They can then continue to be producers, as well as consumers.

What is the problem?

From the negative side, because there are more years in which infections and diseases can affect the population, there are an increasing number of drains on the constitution. A man of 60 years of age has had three times as many years to accumulate physiological and pathological insults as has the man of 20 years of age. The accumulating effect of bad habits—of the over use of tobacco and of alcohol, of taking too little exercise, and particularly of over eating of cholesterol-producing foods, piles up damage upon damage. As the individual becomes older, there are frequently increased effects of poor mental hygiene with resulting psychosomatic damage.

In the United States the average strength of men of 35 years of age is only 70% of what it was at 20. At 65 years of age it is frequently down to almost 50% of what it was at 20. Muscular endurance (figures from the United States Navy during the last world war) fell off about 6% for each five years of age after 18. At 50 years of age, it was about 38% less than it was at 18. In circulo-respiratory endurance, it had dropped to as low as 70% by the age of 45. The breathing capacity of the lungs had fallen off 26% at 65 years of age, and 38% at 75. It is realized that the figures for many of the European countries, such as Sweden, would be much more favorable than those quoted for this country.

In the aging population in many countries, the three factors that seem most significant, aside from increasing amount of pathology, are the falling off of strength, of flexibility of the body, and the deterioration of heart function as determined by the heart's ability to respond to exercise. In addition, the increasing amount of overweight as individuals grow older increases the mortality of this group. In the United States, for the 50 to 59 year-old group, the mortality is 22% higher for those 25% overweight than it is for those of normal weight.

In the aging there are usually fewer functioning kidney tubules, there is frequently an increase in blood pressure—frequently pathologically high—more habits of inactivity, and more worries.

These factors are listed as conditions as they exist, not as conditions as they should be or even as they could be.

What can be done about it? Some countries are doing very well indeed. For example, Sweden, with a population of approximately 6,700,000, has over 20,000 functioning sports clubs and 2,800 gymnastics clubs—these latter with an average actively participating membership of over 500. In that country probably at least 40% of the adults are regularly participating in some form of exercise—gymnastics or sports. Sweden, however, is a country that is doing exceptionally well. Many countries (of which the United States is one of the worst examples) are doing very little of a constructive nature.

It is becoming increasingly hard in this country to promote healthful living. Teachers of health education in the public schools, who have relatively little

*Director of Research, Department of Physical Education State University of Iowa.

time to educate for healthful living, have to compete over the whole lifetime of the population with advertisements—in magazines and newspapers, over the radio, and now on television—with products which are conducive to poor health habits. Almost all of the advertisements tend to promote a sedentary life, not an active one.

The answer of what to do in most countries (at least for the next few years) is *not* organizing sports clubs alone. Suppose one thinks in terms of such a sport as tennis or of badminton. If doubles (four people playing) were played every hour from 6 in the morning until 8 o'clock in the evening, one court would care for only fifty-six people. Obviously the courts are *not* occupied every hour, nor are doubles played every hour. Observation has indicated that a tennis court which cares for an average of twenty-five people per day is doing very well indeed. In the city of Chicago there is one tennis court for each 6,700 of the population. Obviously, sports of this kind do *not* constitute the sole answer to the problem for our population.

If half of the people from 18 to 45 years of age alone were to want to use sports facilities of a semi-individual nature (as distinct from team sports, such as football, field hockey, and the like) and to engage in these activities three times a week, for Philadelphia with approximately two million population, there would need to be about 800 golf courses (and transportation facilities to reach them), 80,000 tennis courts, 80,000 badminton courts, 600 swimming pools, 6,400 gymnasiums, 3,600 playgrounds, and other facilities demanding a similar number of courts. This, of course is fantastic and will probably not occur in the lifetime of the writer's great-grandchildren. Is there not then something that can be done? The writer thinks that that there is. Much, of course, will follow the same principles as in corrective therapy, which are well known to the readers of this *Journal*; hence, those principles will not be repeated here.

1. Much more emphasis needs to be given to health education both through the schools and the public press. Points to be particularly stressed should be healthful eating and moderation in the use of tobacco and alcohol.

2. There needs to be a great increase in the habit of getting periodical medical examinations. This would, of course, be a matter of having many more physicians in many countries than are at present available, and of educating the people to call on them. Incidentally, it means educating the physicians in how to give a satisfactory medical examination; many of them in this country at least, do not seem to know how.

3. There needs to be education of physicians in

the physiology of exercise. In this country most physicians know almost nothing of exercise or of exercise therapy. They do not know how to prescribe exercise to fit the needs of persons of any age. This is a type of education, that together with corrective therapy, tends to be omitted in the training of physicians in almost all of the colleges of medicine.

4. It is suggested that the practitioners of physical education, of corrective therapy, and of sports medicine unite in promoting practical habits of exercise. While engaging in sports is usually more pleasurable than is free-hand exercise, it is not practical for vast numbers of people, particularly during periods of inclement weather. The writer therefore suggests that considerable attention be given to the preparation and propagation of feasible programs of home exercise. Here the writer would like to propose a device which he has found useful. Many people prefer to do home exercise—if they do it at all—upon arising in the morning. At that time they are not dressed in street clothing, all of the family generally arise about the same time, and it is *convenient* to exercise then. On the other hand, upon arising from bed, most people feel a great lack of energy, and it is difficult to make themselves exercise. The writer has found a way to avoid this difficulty. He believes that the reason why individuals feel a lack of energy upon arising is that during sleep there has been an undue accumulation of blood in the splanchnic area or in the blood vessels inside the abdominal region. When the individual arises, since there is a dearth of blood in the peripheral circulation, gravity tends to pull the blood downward from the brain, and there is a temporary brain anemia. As a result, the individual feels a lack of energy. The writer has found that if the subject will perform six or seven exercises *while still lying in bed*, one of which exercises is a fairly strenuous exercise for the muscles of the abdomen, that this causes immediately an effective re-distribution of the blood and upon arising the individual feels as vigorous as he would feel later in the day. All of the exercise routines prepared by the writer for morning exercise begin with exercises in bed. Two such exercise routines, one prepared for people 65 years of age and over, and one prepared for younger people, will be appended to this paper.

It would help if the radio were to offer exercise helps several times in the morning about the time most people arise. In addition to this type of general exercise for the maintenance of strength and endurance, there is frequently a need for specific prescriptions of exercise which should be the prerogative of the physician. In particular there is the need for corrective exercises for the lower back to obviate and cure the high incidence of low back pain; exercise of the abdomen to keep the abdominal muscles in sufficiently

MORNING EXERCISE OUTLINE FOR 65 YEAR OLDS AND OLDER

A. These exercises to be done *in bed*, on back:

1. "Stretch" hard several times.
2. Raise chest as high as possible, pulling in abdomen.
b. Lower chest, pushing out abdomen. 8-12 times.
3. If there is something to grasp on head of bed, such as sides of head of single bed, or vertical rods, grasp it about one foot above pillow. Press hard downward with hands, arching upper back.
If no place to grasp, double fists and place each on pillow beside head and press elbows toward head of bed, arching upper back. 8-12 times.
4. Place one fist in palm of other hand, hands close to front of chest, shoulder height, forearms in line, shoulder high. Press hard, first to one side, then to the other, resisting with other arm. 8-16 times.
5. Arms sideward, forearms flexed in front of upper arms, fists clenched. Pull hands apart as though pulling on a spring, pressing elbows hard against bed—inhalation. 8-16 times.
6. *Keeping lower back on bed*, "curl" head and trunk forward and slightly to left, trying to touch left knee with right hand. Return to supine position and repeat to opposite side. 8-32 times.
7. Tense thighs and legs hard and relax. 16-30 times.
8. Hands clasped behind head, feet on bed about 1½ feet from hips. "Bridge" on head and hand and feet. 8-20 times.

B. Do these exercises out of bed:

1. Standing. Arms forward, upward and return, then sideward, upward and return. 8-16 times.
2. Standing. Squat clear down, heels on floor, fingers touch floor between and in front of feet. Return. 12-30 times.
3. Squatting down on one leg, hands on floor, other leg back; change legs with a jump. 8-16 times.
4. Standing. Head forward 45 degrees, feet apart sideward, hands on hips with knees straight. Curl forward and downward as far as you can. Then straighten *back* to position leaning forward about 45 degree from the vertical. Repeat 8-20 times.
5. Standing. Feet apart sideward, hands behind head. Bend rather slowly sideward left and right. 6-12 times each side.
6. Swing arms forward and backward, bending knees slightly with each swing and jumping slightly off floor as knees straighten at each end of arm swing. This is like the preliminary arm swings before the standing broad jump. Do it until very slightly winded.
7. Standing. On toes high, raising chest and pulling abdomen in. 10-20 times.

TABLE I

good trim that the individual will not suffer visceral ptosis; and exercise for the feet that will aid in preventing much of the foot pain which is so prevalent in middle and old age. In addition to this, attention should be given by the family physician to the alignment of the spine, particularly the lower spine. Oftentimes, malalignments due to a short leg or one flat foot, or some other cause, results in acute lower back pain that can be readily obviated by a higher heel on the shoe or some other device which will keep the lower spine in proper alignment.

It is further suggested that *in addition to* organized playgrounds, an attempt be made to *decentralize recreation* insofar as the social structure of the coun-

try permits. For example, in our country a vast majority of the people live in homes which are surrounded by a small plot of ground, which we call a back yard. This is large enough, in most cases, to use as a recreational area. People who do not find time to go to large central playgrounds can readily exchange facilities with their neighbors. For example, in one yard there may be a place for the practice of archery; in another yard a small volleyball court that is large enough for two persons on a side to play; in another yard a badminton court, and in a fourth, equipment to practice with a medicine ball. Individuals from different parts of the neighborhood can go to one yard one day and another yard another. In still another

MORNING CALISTHENICS FOR YOUNG AND MIDDLE AGED

Note: "S.P." means "Starting Position"

"Mov." means "Movement"

Note: Do first eight exercises in bed before arising.

I. Follow Bed Exercise Routine as in Chart 1. Then get up.

II. General Warmup Exercise:

1. Squat rest and up.

S.P. Standing, arms over head.

Mov. 1. Lower body to squat rest position, squatting fully down, hands on floor in front of feet.

2. Return to starting position, stretching high.

III. Arm and Shoulder Exercises:

1. Knee Push Ups (better put a pillow under the knees)

S.P. Lying face down on the floor, hands on floor beside shoulders, elbows close to sides, knees bent at right angles.

Mov. 1. Push up with arms, keeping body straight from knees to shoulders.

2. Recover to starting position.

3. Repeat 1.

4. Repeat 2.

or

2. Push-ups.

S.P. Lying face down on floor, hands on floor beside shoulders, elbows close to sides, weight resting on toes, hands, and chest.

Mov. 1. Push up with arms, keeping body straight from feet to shoulders.

2. Recover to starting position.

Repeat 1.

Repeat 2.

IV. Back Exercises:

1. Bench and Arch.

S.P. Standing, feet in side straddle position, hands on hips.

Mov. 1. Bend forward at waist, *bending the back* as far down as possible. Keep knees straight.

2. Straighten trunk to a position of a forward forty-five degree bend, upper back as straight as possible, and chin pulled in and back as much as possible.

3. Repeat 1.

4. Recover to starting position.

This exercise should not be done too fast. It can be made more strenuous if the hands are held behind the head.

or

2. Back Lifts.

S.P. Lying face down on the floor, hands clasped behind head, elbows high from floor.

Mov. 1. Raise chest and legs (with knees straight) from the floor, pulling head and elbows back hard.

2. Recover to starting position.

3. Repeat 1.

4. Repeat 2.

V. General Exercises:

1. Mountain climber.

S.P. Hands on the floor, leg (left) at the squat, right leg extended backward fully.

Mov. 1. Exchange position of feet with a jump.

2. Again exchange position of feet.

3. Repeat 1.

4. Repeat 2.

or

2. Squat Thrust.

S.P. Standing

Mov. 1. Squat rest position (knees bent, hands on floor in front of feet).

2. Thrust both legs backward fully.

3. Return to first position.

4. Return to starting position.

VI. Shoulder Posture Exercises:

1. Shoulder Puller.

S.P. Standing, trunk inclined forward forty-five degrees, arms forward, palms down.

Mov. 1. Swing arms sideward and backward, at the same time pulling chin back hard; then relax slightly.

2. Again pull arms backward hard, pulling chin back, and again relax.

3. Repeat second count.

4. Return to starting position.

This movement is a slow one, strongly executed.

VII. Waist and Hip Exercises:

1. Side Bend.

S.P. Feet in side straddle position, hands behind head.

Mov. 1. Bend sideward left.

2. Return to starting position.

3. Bend sideward right.

4. Return to the starting position.

2. The Bobber

s, trunk erect.

S.P. Feet in side straddle position, hands on hips, try to touch the floor between feet, and then relax slightly.

Mov. 1. Bend forward, with knees straight, and ly.

about six inches farther forward, and again relax slightly.

2. "Bob" downward, and touch the floor ly.

touch the floor still farther forward, and then relax.

3. Again "bob" downward, and this time

4. Return to the starting position.

I touch the floor farther and farther forward, but always

(Note: In doing this exercise, the performer will touch the floor at all will go down as far as possible without undue strain on the backs of the legs).

VIII. Leg Exercises:

1. Full Squat.

S.P. Standing.

Mov. 1. Bend both knees fully, with trunk erect. Swing arms forward at the same time for balance.

2. Return to the starting position.

3. Repeat 1.

4. Repeat 2.

(Note: For older people or those who are too heavy, this exercise can be done with less dosage and with less strain on the knees if the feet are separated about twelve inches, and with the toes turned out somewhat, the squatting being done with the feet flat on the floor).

or

2. Stationary Run.

S.P. Standing.

Mov. Do a running movement in place, lifting knees to the height of hips, and swinging arms vigorously in the normal running movement. This should be done until the individual is moderately "wind-ed." This is an excellent exercise and should be used if practicable. (A fat man can shake the plaster off downstairs!)

and all do

3. Toes and Heels.

S.P. Hands on hips, feet separated slightly and toes pointed inward about thirty degrees.

Mov. 1. Rise on toes high and hard, and inhale, pressing downward on hips with hands.

2. Drop heels to floor and rise on heels hard, exhaling fully.

3. Repeat 1.

4. Repeat 2.

Start with about six repetitions of all but VIII (do this one until mildly winded). Work by adding one repetition per week until doing 20 repetitions if under 45 and 12-16 if over 45. Do stationary run until mildly winded. BE SURE YOU ARE ORGANICALLY SOUND BEFORE YOU BEGIN THIS, and don't progress too fast unless you are in pretty good shape now.

TABLE II

HOME, YARD AND NEIGHBORHOOD EXERCISES AND PHYSICAL RECREATION

The following list gives suggestions as to kinds of exercise and sports that may be useful to older persons, and which can be done at home.

I. Exercise in your room

Calisthenic exercises without apparatus

Calisthenic exercises with dumbbells (3 to 10 pounds in weight)

Exercises with barbells (usually from 30 to 75 pounds)

Exercises with springs or rubber cables

II. Exercise or sports for the basement play room

All of the above

Archery with miniature target set against a bale of hay

Bag punching. Try it to the music of the phonograph.

Balloon volleyball (2 or more persons)

Deck tennis

Deck tennis with bean bags

Golf driving into a blanket hung on the clothes line

Golf putting on the rug

Rope-ring quoits (played like horseshoes)

Ping Pong

Rubber quoits

Darts

Shuffleboard

III. Exercise or sports for the yard (spring, summer and fall)

All of the above

Archery (30 to 40 yards range)

Basket shooting (basket against the garage)

Boccie (an Italian form of bowling on the lawn—if you have a very smooth lawn)

Golf games

Clock golf (a putting game)

Driving plastic balls

Pitch and putt

Lawn bowls (if lawn is very smooth)

Newcombe (throwing a basketball back and forth across a volleyball net, two or more on a side. Make court as large as you desire. 30' by 60' is full size for six on a side)

Newcombe with a light (4 to 6 pounds) medicine ball

Paddle Tennis (court half the size of tennis court—but should be smooth)

Aerial tennis

Badminton

Bait casting

Boomerang throwing

Croquet

Fly casting

Horseshoes

Playing catch

Smash

Tether ball

Volleyball

(1 to 4 on a side)

IV. Clubs that can be organized. Get together once a week.

Boating and canoeing (if you can swim and if you have the stream or lake)

Fencing (don't wait until you are 80 to begin!)

Orienteering (a European sport; cross country at your own pace with map and compass)

Skating (Ice or roller. Not if you are too old; old bones are brittle)

Softball (use the 16 inch ball; it's more fun, and not as fast as the 12 inch ball game)

Archery

Bird watching

Bowling

Camera hunting

Folk and square dancing

Golf

Hiking

Riding

Tennis doubles

TABLE III

yard there might be playground facilities for very small children, equipment which is rather common in many communities. In other words, the suggestion is that "playgrounds" be established in back yards all over the city rather than to concentrate *only* on the large playgrounds which are rather far apart.

In addition to this there are many things that can be done in one's home of a recreational nature, and a very partial list of such activities is appended to this paper.

One or two more suggestions might be made. One is that in addition to the organizations of the municipality pushing such activities, they might also be pushed by labor unions and other organizations of that type. To keep its employees in good physical condition would be of real advantage to industry.

The second suggestion is that the type of activi-

ties which can be carried on after school years in adult life might very well be taught in the schools before the time when the children are apt to leave school. Most states have laws which require all people to continue to go to school until they are 16 years of age. Hence it will be quite feasible to teach such activities during about the 14th and 15th year of age of the pupils, after which all such pupils would then know what to do when they have left school. This means that home exercise habits and habits of participating in sports for small neighborhood groups need to be established *early* in life, and *continued from then on into old age*. At the present, special efforts should be made to encourage older people to begin and to continue in such activities, if their physical condition permits.

DR. BARNWELL APPOINTED

Dr. John B. Barnwell, known throughout the medical world for his accomplishments in the fight against tuberculosis, has been appointed Assistant Chief Medical Director for Research and Education in the Department of Medicine and Surgery of Veterans Administration at Washington, D. C. Dr. Barnwell succeeds Dr. George M. Lyon whose appointment as manager of the VA hospital at Huntington, W. Va., previously was announced.

Heading VA's Tuberculosis Service since 1946, Dr. Barnwell was honored in 1950 by the National Tuberculosis Association with the Trudeau medal. The citation stated Dr. Barnwell's contributions to the treatment of tuberculosis "are of great value to the entire world." The contributions still are being made through VA's chemotherapy of tuberculosis program in which the so-called "TB wonder drugs" are tested in hospitals of the VA, Army and Navy in a cooperative program conducted by Dr. Barnwell's service. Because of the large number of patients involved in the testing program, the value of the drugs is determined months and even years sooner than they could be learned before, according to Dr. Barnwell's citation.

As Assistant Chief Medical Director for Research and Education, Dr. Barnwell will direct VA's medical research and educational programs in VA's 173 hospitals.

Dr. Barnwell is a native of Selma, Ala. He received his A.B. degree in 1917 from Trinity College in Hartford, Conn. In 1953, the college awarded him an honorary Doctor of Science degree in recognition of his contributions to medical science. During World War I, Dr. Barnwell served in France as a captain of artillery. After his release from service, he studied medicine at the University of Pennsylvania. He received his M.D. degree in 1923 and, with it, the Mary Ellis Bell prize for undergraduate medical research. He accepted an appointment as research instructor at the University of Pennsylvania, serving two years under Dr. A. N. Richards, then professor of pharmacology. In 1926, he began a two-year residency at the Trudeau Sanatorium in Saranac Lake, N. Y., specializing in tuberculosis. In 1928, Dr. Barnwell joined the University of Michigan faculty as an instructor. He later became associate professor and physician in charge of the tuberculosis unit in the School of Medicine. After 18 years at the University of Michigan, Dr. Barnwell resigned his position to join VA's Department of Medicine and Surgery under Dr. Paul R. Hawley, then Chief Medical Director. Dr. Barnwell was president of the American Trudeau Society in 1943. He is a member of the American Medical Association, the National Tuberculosis Association, the American Clinical and Climatological Association, the American Association for Thoracic Surgery, and the American Hospital Association. He also is an honorary member of the Tuberculosis Society of Venezuela and the Tuberculosis Society of Chile. He was a member of the tuberculosis study section of the U.S. Public Health Service in 1946.

VA SURVEY SHOWS TRANQUILLIZERS EFFECT DISCHARGE RATE

Discharges of former chronically-ill mental patients, now treated with tranquillizing drugs, increased 36 per cent at the Northampton (Mass.) Veterans Administration hospital, according to a survey released recently.

Comparing the last six months of 1954, when few patients were treated with tranquillizing drugs (chlorpromazine and reserpine), with the same period in 1955 when extensive drug treatment was given, the hospital reported 118 patients were discharged while only 86 were discharged the previous year.

Among patients hospitalized five years or longer, it was found that the percentage of improved cases increased even more when these patients were treated by drugs as compared to other types of treatment, according to Dr. Lionel M. Ives, director of professional services at the hospital. Thirty-three were discharged among this group as compared to 19 the year before without benefit of drugs, or a 77 per cent increase. In the less-than-five-year-group, 35 were discharged against 66 or a 29 percent increase.

ECONOMIC SURVEY OF AGED SHOWS 75% WITH LITTLE OR NO INCOME

A three-year survey of the economic condition of the aged shows that nearly three-fourths of the men and women in the United States over 65 years have either no income or incomes less than \$1,000. The survey was sponsored by the Twentieth Century Fund and published under the title "Economic Needs of Older People."

The report states that only 15 per cent of the over-65 group receives more than \$2,000 per year; 11 per cent receive between \$1,000 and \$2,000; 38 per cent receive less than \$1,000 and 36 per cent have no income of their own. About one-third of the group receive social security benefits or payments from retirement programs; twelve per cent had income from savings, insurance, investments, relatives or veterans' benefits; five per cent are in public or private domiciliaries, hospitals or other institutions; and 20 per cent receive public assistance, according to the report.

The report was written by John J. Corson, former director of the Bureau of Old-Age and Survivors Insurance, and John W. McConnell, Professor of Industrial and Labor Relations at Cornell University.

RESERPINE SYNTHESIZED

Two groups of chemists have announced that they have synthesized reserpine, a highly complex drug derived from *Rauwolfia serpentina*, which has been widely used recently in the treatment of disturbed schizophrenics. The announcements appear in the current issue of the *Journal of the American Chemical Society*.

MODERATE RESISTANCE EXERCISES

JACOB L. RUDD, M. D.*

Introduction

"Moderate Load - Repetition Exercises" involves the lifting of a moderate weight, a moderate number of times.¹ This activity regime may be described in simple terms as "resistance until discomfort detected." There is seldom a need to change the weights for the first week or longer. The simplicity and the time saved by this method is preferred (for most patients) to those methods that require a lift of a maximum weight for a definite number of times with frequent weight changes.²

The increase in strength achieved by a moderate load-repetition activity appears to be sufficient for the patient's requirements of daily working and liv-

ing. There is no need for time-consuming predeterminations of the exact number of repetitions or the exact amount of weight that will be tolerated. An approximate estimate of the amount of weight that can be lifted without discomfort for a moderate number of times is sought. We start with lifts of between 6 to 20 times. Warming-up occurs in the early part of the lifts. A rest period of a few minutes intervenes after the first and second lifts and then the third one completes the series for that session.

¹ Rudd, J. L.: Resistance Exercises in Private Practice, *Arch. Phys. Med.* (Dec.) 1955.

² DeLorme, T. L., and Watkins, A. L.: *Progressive Resistance Exercise; Technic and Medical Application*, New York, Appleton-Century-Crofts, Inc., 1951.

*481 Beacon Street, Boston, Mass.

(CASE 1)

Number of Repetitions
(approximately 2 minutes between
each set of exercises)

Date	Weight Lifted	1st	2nd	3rd
Feb. 9	15	14	18	16
10	15	8	10	8
11	15	20	16	17
12	15	20	20	17
15	20	18	15	14
17	20	15	15	14
18	20	16	15	14
19	20	17	15	14
25	20	17	15	14
Mar. 1	25	12	14	11
2	25	12	12	11
3	25	15	13	12
4	25	16	12	12
5	25	14	16	12
8	25	10	16	15
9	30	17	18	15
10	30	19	15	16
11	30	20	16	14
12	30	20	16	12
15	35	14	15	10
18	35	17	15	12
19	35	17	17	12
22	45	9	12	9
23	45	10	12	9
26	45	12	14	12

Feb. 9—Right thigh 5" above top of patella—19"

Mar. 23—Right thigh 5" above top of patella—19½"

Feb. 26—Moderate single lift (to tolerance) of left—25 lbs. "unexercised"*
Moderate single lift (to tolerance) of right—35 lbs. exercised

Mar. 24—Moderate single lift (to tolerance) of left—40 lbs. "unexercised"
Moderate single lift (to tolerance) of right—55 lbs. exercised

*The so-called "unexercised leg" increased in strength. We believe this increase in strength is due to "cross-exercise" rather than "cross-education," as it is usually called. The contralateral limb is actually exercised. How much it is exercised depends upon the load the ipsilateral weighted extremity must lift and the consequent strain on the contralateral limb.

TABLE 1

(CASE 2)

	Date	Weight Lifted	Number of Repetitions (approximately 2 minutes between each set of exercises)		
			1st	2nd	3rd
April	11	8½	6	8	8
	19	8½	9	11	10
	21	8½	12	13	12
	25	8½	13	12	12
	27	11	10	13	14
May	2	11	16	16	13
	4	11	18	15	16
	7	11	20	20	20
	11	16	12	10	12
	14	16	10	15	10
	18	16	10	16	13
	21	16	12	13	13
June	1	16	14	12	11

After the series of treatments the patient was able to walk up and down stairs for the first time since her injury.

TABLE 2

In order to clarify the description above, a few typical examples of moderate load-repetition exercises are presented in some detail.

Case 1:

H. N., 42 years old, fell, producing a large hematoma over the head of the right femur. When swelling subsided a weakness of the right lower extremity was noted. Moderate weight (load), moderate repetition lifting was begun. Initial activity consisted of a comfortable single lift of 20 pounds. This was reduced to two-thirds of the single comfortable lift, 15 pounds, which was elevated 14-18-16 times with approximately two minute rest period between each of the three lifts. After a six week exercise period a load of 45 pounds was lifted 10-12-9 times. A description of this case, depicting the method of moderate resistance (weight), moderate repetition (number of times weight lifted) exercises is given in Table 1.

Case 2:

I. H., a 55 year old female fell on her right knee in 1952. She was seen by her doctor in February 1955, because of pain in her right knee. The pain became steadily worse in the seven or eight months preceding her visit to the doctor. No locking or catching was complained of, but soreness and aching were present in the antero-medial aspect of the right knee.

On examination her local physician found synovial thickening with minimal osteoarthritic changes in the right knee joint. The circumference of the right thigh was ¾ inches less than the left. The doctor said the soreness might be eliminated by building up the strength and bulk of her right thigh quadriceps muscle.

She was started on the moderate method of progressive resistance exercising, April 11, 1955.

CASE 3

	Date	Weight Lifted	Number of Repetitions (approximately 2 minutes between each set of exercises)		
			1st	2nd	3rd
Nov.	10	1	14	14	12
	15	1	16	15	8
	17	1	8	5	4
	22	1	10	9	10
	23	1	18	20	7
	29	1	12	18	13
Dec.	1	1	19	15	16
	6	3	17	18	15
	8	3	25	26	28
	15	6½	8	8	8
	29	6½	9	8	7
Jan.	5	6½	10	11	10

TABLE 3

GAINS IN AMOUNT OF WEIGHT LIFTED WHEN QUADRICEPS WAS EXERCISED

Patient	Age	Diagnosis	(a) Weight Lifted (b) No. of Repetitions	Duration	(a) Weight Lifted (b) No. of Repetitions
H. G.	39	Normal	(a) 15 pounds (b) 13-14-15 times	After 4 weeks	(a) 25 pounds (b) 15-16-14 times
A. J.	30	Normal	(a) 15 pounds (b) 20-24-20 times	After 5 weeks	(a) 50 pounds (b) 6-7-5 times
B. N.	23	Normal	(a) 15 pounds (b) 17-18-14 times	After 5 weeks	(a) 50 pounds (b) 8-9-9 times
G. R.	52	Fused knee opp. leg Chronically Ill	(a) 25 pounds (b) 12-14-15 times	After 2 weeks	(a) 35 pounds (b) 18-15-13 times
L. T.	62	Debilitated Hip & Knee	(a) 5 pounds (b) 20-22-11 times	After 4 weeks	(a) 25 pounds (b) 15-18-16 times
W. F.	59	Arthritis Damaged	(a) 20 pounds (b) 14-17-14 times	After 4 weeks	(a) 45 pounds (b) 12-14-10 times
W.	55	Damaged Meniscus	(a) 15 pounds (b) 20-16-13 times	After 1 week	(a) 25 pounds (b) 20-17-16 times
V.	26	Damaged Meniscus	(a) 20 pounds (b) 26-36-23 times	After 2 weeks	(a) 40 pounds (b) 32-23-22 times
C.	48	Removed Meniscus	(a) 5 pounds (b) 20-40-25 times	After 1 week	(a) 15 pounds (b) 13-12-12 times
D. T.	22	removed—knee Meniscus	(a) 20 pounds (b) 18-23-23 times	After 3 weeks	(a) 35 pounds (b) 17-17-12 times
W.	53	removed Meniscus	(a) 15 pounds (b) 20-16-13 times	After 1 week	(a) 25 pounds (b) 20-17-16 times
H. N.	42	Hematoma Hip Intervertebral disc nerve involved	(a) 45 pounds (b) 14-18-16 times	After 6 weeks	(a) 45 pounds (b) 10-12-9 times
W.	34		(a) 2½ pounds (b) 12-7-10 times	After 1 week	(a) 12 pounds (b) 20-25-24 times
S.	32	Polyneuritis	(a) 7½ pounds (b) 24-25-22 times	After 1 week	(a) 20 pounds (b) 25-23-23 times
W. B.	41	Poliomyelitis	(a) 5½ pounds (b) 10-13-15 times	After 7 weeks	(a) 25 pounds (b) 15-17-12 times
B. H.	7	Fracture L. femur	(a) 1 pound (b) 14-14-12 times	After 7 weeks	(a) 6½ pounds (b) 10-11-10 times
H. Y.	52	Hemiplegia	(a) 25 pounds (b) average 10 times	After 8 weeks	(a) 30 pounds (b) average 10 times
I. C.	65	Hemiplegia	(a) 2½ pounds (b) average 10 times	After 8 weeks	(a) 10 pounds (b) average 10 times
M. C.	65	Hemiplegia	(a) 2 pounds (b) average 10 times	After 7 weeks	(a) 9 pounds (b) average 10 times
L. L.	70	Senile	(a) 15 pounds (b) average 10 times	After 6 weeks	(a) 18½ pounds (b) average 10 times
S. B.	72	Senile	(a) 11½ pounds (b) average 10 times	After 7 weeks	(a) 18 pounds (b) average 10 times
I. L.	84	Senile	(a) 10 pounds (b) average 10 times	After 8 weeks	(a) 16½ pounds (b) average 10 times

(For some of the older, weaker patients a single lift must suffice.)

TABLE 4

Case 3:

B. H., age 7, was struck by a car while walking across the street. Admitted to hospital and was in traction. Diagnosis was: "Fracture left femur—some bowing in midshaft." Five weeks later was discharged. The referring orthopedic surgeon felt the bone was "fairly well healed." He asked for caution in giving strengthening exercises.

Table 4 outlines other cases showing the gains in weight lifted when the quadriceps was exercised.

Comment

"Moderate resistance—repetition" or "resistance until discomfort detected" is a type of activity that permits motion to continue only until discomfort is detected in the exercised muscle groups. It is an exercise which stresses moderation both in the weight lifted and in the number of time it is elevated. A cer-

tain rest period between the lifts is also sought, but not necessarily an exact two minute interval. It is only after the exercised muscles "feel rested" that the second and third parts of the series of three lifts is started.

Moderate resistance exercises exhibit some differences in comparison to other lifting methods. These differences are mainly in simplicity and in the time saved in changing weights. The exercises can be used for the young patient in good health, but they are even more applicable to convalescing youngsters or to older patients. We have not noticed sufficient differences in strength gained by other methods to justify the use of the "maximum weight" even though admittedly heavier weights would produce stronger muscles in a shorter time—if the patient were able to endure the maximum strain. The frequent use of the exact "ten"

or multiples of ten in counting the number of repetitions does not seem to be necessary.

The first paragraph in a book, *The Troubled Mind*³ discusses the frequency of the use of "ten" in counting and the reason why this number is so often used. The paragraph reads, "Mathematicians have deplored the fact that we have ten fingers instead of twelve. Primitive man made ten the first multiple in counting because he used his fingers in his primitive calculations. Thus there arose the demical system of arithmetic based upon the multiple of ten. Yet twelve would be a better working number, for it is divisible by 2, 3, 4, and 6 while ten is divisible by 2 and 5 only. It is too late, of course, to change the numerical system, but it is interesting to note the manner in which it has been patterned by the fixed ideas of centuries."

No arbitrary numbers in "moderate resistance-repetition exercises" need to be or can be predetermined, for the weight is to be lifted only until the patient notes that his muscles are becoming somewhat tired—"resistance until discomfort detected." The individual lifting the weight is the sole judge of when to stop the activity. This usually varies with each patient and the same patient or person at different times. The comparatively low repetition found in the progressive resistance exercises and the comparatively high of the Oxford group⁴ represent two extremes. Better functioning, we find, is usually obtained if a mean between the two extremes is offered.

It should be noted that even a laborer, whose daily tasks involve shoveling dirt, or the longshoreman who lifts heavy loads, do not and need not use a certain definite number of motions with a certain maximum load in order to develop a strong body musculature. They do their jobs, maintain or gain in strength even though they seldom use the "overload" method of maximum lifting in doing their work.

Daily Activities For The Aging

Under ordinary living conditions we require (for our minimum daily tasks or the requirements of daily living) an expenditure of energy roughly comparable to the physical effort involved in a moderate amount of weight lifting. By the use of moderate resistance-repetition exercises, with its simplicity and avoidance of undue strain, an individual who is in poor general

condition because of age or is weakened by disease (but still needs to expend some effort daily) can receive the benefit of a safe form of conditioning.

It is generally accepted that in early or late middle-life the average person has neither the strength nor the time to go into the regular and rigorous training routine that he or she was once able to accomplish easily. The aging non-athlete, former athlete or would-be athlete, now a working professional or business man must consider doing only a moderate, non-strenuous type of exercise routine. Such a person does better on a moderate form of resistance exercise a few times a week since neither much time nor straining is required in such activity. It is this type of exertion (useful and safe) which those who are over 40 years of age but still inhabit a gymnasium for a workout are able to endure. For them, moderate sessions of volleyball, swimming, punching bag activities, class calisthenics, as well as weight-lifting are usually enjoyable and beneficial.

For the older arthritic group, moderation is especially indicated. Extra caution regarding the amount and degree of effort is required when treating the aging, or the aged with "multiple handicaps." Those afflicted with cerebrovascular or peripheral vascular disease, the large group suffering from arthritis of the back, foot, knee, or hip can be given only the mildest form of therapeutic exercise. How much of this they can tolerate is left safely to their own judgment as long as they employ the moderate resistance-repetition regime.

Conclusion

A simple method of exercising, with case reports is presented.

The importance of the described method lies in its safety, since the individual lifting the weight is the sole judge of when to stop because the load has begun to be a strain. It is easily proved that this is an effective means of increasing muscular power. It is particularly applicable to the elderly and the ill.

³Bluemel, C. S.: *The Troubled Mind*, The Williams & Wilkins Co., Baltimore, Md., 1938.

⁴Zinovieff, A. N.: Heavy Resistance Exercises; "The Oxford Technique." *Brit. J. Phys. Med.* 14:129 (June) 1951.

ISONIAZID INEFFECTIVE IN TREATING M.S.

A two-year clinical investigation by 11 Veterans Administration hospitals finds that isoniazid (INH), one of the so-called "wonder drugs" for the treatment of tuberculosis, has no beneficial effect on multiple sclerosis. The report was made by Dr. Benedict Nagler, chief of VA's neurology service and chairman of the VA cooperative study, before the American Neurological Association meeting in Atlantic City, N. J. Dr. Nagler said the study was in-

stituted after the VA hospital at the Bronx, N. Y., had tested the drug on 30 multiple sclerosis cases and had reported improvement in most of them. Of four other investigations under other auspices, one had reported favorable results with INH and three, negative results, Dr. Nagler said. The cooperative VA study, he explained, was designed to make a more extensive test and under more controlled conditions than were employed in any of the other tests.

GUILLAUME BENJAMIN AMAND DUCHENNE DE BOULOGNE

An appreciation at the Occasion of the 150th Anniversary of his birth (1806-1875).

ERNST JOKL, M. D.*

JOSEPH REICH, M. D.**

Guillaume Benjamin Amand Duchenne de Boulogne was born on September 17, 1806. A pupil of Cruveilhier, Dupuytren, Velpeau and Laennec, Duchenne studied medicine in Paris from 1825 to 1831. After a brief spell of medical practice in Boulogne, he returned in 1834 to Paris where for four decades he worked side by side with such brilliant clinicians as Charcot, Potain, Trousseau, Nelaton, Broca, Dieulafoy, Landry and Aran.

In the Salpetriere in Paris stands a monument depicting a doctor leaning over a patient while he applies electrodes connected with a simple apparatus. An engraved inscription reads:

1806-1875

A. Duchenne (de Boulogne)
Electrisation localisée.

Physiologie des Mouvements. Neuropathologie.

A singularly astute observer, Duchenne brought to bear upon his clinical work the resources of experimental physiology and of pathological anatomy. To illustrate, his investigations of the muscular system were conducted with living normal subjects; with amputated extremities which he stimulated after rapid dissection but before muscular irritability was lost; with cadavers while responses to electric stimulation could still be elicited; and with animals, such as in the analysis of the function of the diaphragm to which Hughling Jackson¹ referred in great detail in 1899.

Though the methods at his disposal were simple—e.g., histological staining techniques were still unknown during his lifetime—many of his contributions have never been equalled.

Francois Magendie's Electrophysiological Demonstrations

Duchenne's interest in electrophysiology was awakened by the great physiologist Francois Magendie (1783-1855), famous for his controversy with Sir Charles Bell over the priority of the discovery of the motor and sensory character of the anterior and posterior spinal nerve roots respectively. In 1828 Magendie applied a metal probe to the retina of a woman whose eyeball was incised for the removal of a cataract. His aim was to ascertain whether "this hidden part of the body is sensitive to pain." The patient, who had been blind before the operation, felt no dis-

*Director of Rehabilitation, University of Kentucky.

**Former neurologist, Veterans Administration West Side Hospital, Chicago, Ill. Deceased April 23, 1956.

DE

L'ELECTRISATION LOCALISÉE

ET DE SON APPLICATION

A LA PHYSIOLOGIE, A LA PATHOLOGIE

ET A LA THÉRAPEUTIQUE,

PAR LE DOCTEUR

DUCHENNE DE BOULOGNE,

Lauréat de l'Institut de France et de la Société de médecine de Gand,
Membre titulaire de la Société de médecine de Paris, correspondant des Académies
ou Sociétés de médecine de Bordeaux, Lyon, Strasbourg,
Dresde, Florence, Genève, Leipzig, Stockholm, Würzburg, etc., etc.

Accompagné de 108 Figures intercalées dans le texte.

A PARIS,

CHEZ J.-B. BAILLIÈRE,

LIBRAIRE DE L'ACADÉMIE IMPÉRIALE DE MÉDECINE,
RUE HAUTEFEUILLE, 49;

A LONDRES, CHEZ H. BAILLIÈRE, 219, REGENT STREET;

A NEW-YORK, CHEZ H. BAILLIÈRE, 290, BROADWAY;

A MADRID, CHEZ BAILLY-BAILLIÈRE, CALLE DEL PRÍNCIPE, N° 44.

1855.

Fig. 1. Title page to Duchenne's book "L'Electrisation Localisée," first edition, 1855.

comfort, but on the contrary, reported with delight that she saw "flashes of light" whenever the retina was stimulated.

On subsequent occasions Magendie inserted platinum needles into the orbital branches of the fifth nerve of a man and "galvanized" them. J. M. D. Olmsted² pointed out that Magendie "did not carry this

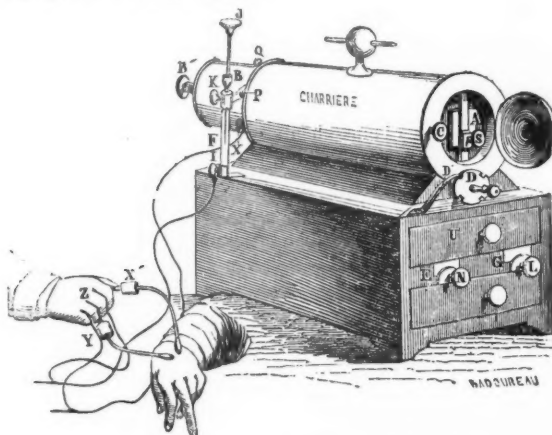
¹Selected Writings of Hughling Jackson, Edited by James Taylor, Gordon Holmes and F. M. R. Walshe, Vols. II, Hodder and Stoughton, Ltd., London, 1932.

²J. M. D. Olmsted, *Francois Magendie, Pioneer in Experimental Physiology and Scientific Medicine in XIX Century France*, Schuman's, New York, 1944.

method of treatment very far," and "that the most beneficial results of his attempt to use electricity as a therapeutic measure was the interest which he aroused in the mind of Duchenne who was really the creator of the science of electrotherapy."

"Localized Electrization"

Duchenne soon discovered that it was unnecessary to puncture the skin in order to stimulate muscles. He used two cutaneous metallic electrodes, "rheophores," eliminating in this manner pain and the danger of infection. By moistening skin and electrodes he localized the effect of the current. Under the title "Localized Electrization,"²³ Duchenne published in 1855 a book of which A. Eulenburg of Berlin wrote at the time that it "gave electro-diagnosis a place in clinical medicine comparable in importance only to percussion and auscultation."



The Traumatic Paralysis of the Peripheral Nerves

When Duchenne came to Paris, no rational system of classification of the paralyzes was known. He took up the study of traumatic paralysis of the peripheral nerves. On the basis of his experiences with "localized electrization," Duchenne distinguished between paralysis in which the muscles "become atrophic despite treatment and remain useless;" and "paralysis which tend to disappear, with or without treatment." Duchenne pointed out that the severity of a traumatic paralysis can be judged by the degree of contractility in response to electric stimulation of the involved muscles. This observation has remained a leading principle in electro-diagnosis. It preceded the discovery

Fig. 2. "Faradic stimulator" and "rheophores" designed by Duchenne.

of the reaction of degeneration by Erb and the introduction of chronaxy by Bourguignon.

In his earlier papers Duchenne spoke at times of "localized galvanization." This term, however, is misleading since in all his studies he used faradic current only.

Duchenne-Erb's Paralysis

Duchenne was one of the first to describe paralyzes secondary to lesions of the spinal plexus. One of them bears his name, the so-called Duchenne-Erb paralysis, which follows damage to the 5th and 6th cervical root. Duchenne recognized the condition to be the result of an obstetrical injury while Erb clarified its anatomical basis. It involves the Mm. rhomboidei, supraspinatus, infraspinatus, teres minor, deltoideus, coracobrachialis, biceps brachii, brachio-radialis and supinator.

Lead Poisoning

Another peripheral neuropathy which Duchenne's studies clarified is that due to lead poisoning. He noted the regular order of involvement of single muscles, of the extensors of fingers and wrists resulting in the wrist drop, and he called attention to the sparing of the supinator longus and the triceps, stressing that he was unable to give an explanation for the selectivity of the process. Apparently no satisfactory explanation has been given yet.

Duchenne-Aran's Disease

Duchenne communicated a number of cases of muscular atrophy which "were nothing less than paralyzes." In 1849 he specified what is known today as "spinal muscular atrophy" or "atrophic palsy of hands and fingers" or, most commonly, as "Duchenne-Aran's Disease." His description of the clinical picture and development of the condition has not been surpassed. At first, Duchenne and Aran considered the disease a primary affliction of the muscles. Three years later Cruveilhier noticed at post mortem examination slimness of the anterior roots and thought that this was the essential lesion in progressive muscular atrophy. But, in 1860, Luys found the true cause, namely degeneration of ventral horn cells.

Classification of the Muscular Dystrophies

It took another thirty years and the combined clinical and pathological efforts of Duchenne, Charcot, Leyden, Landouzy, Dejerine and Erb to clarify the categorical distinction of the myogenic as against the myelogenic forms of the muscular dystrophies. In 1870 Charcot suggested that amyotrophic lateral sclerosis is a distinct clinical entity related to, though different from, the other forms of the progressive muscular dystrophies. Syringomyelia, hypertrophic pachymeningitis and syphilitic types were recognized. The

²³Duchenne de Boulogne, *L'électrification localisée et de son application à la physiologie, à la pathologie et à la thérapeutique*, J. B. Baillière, Paris, 1855.

²⁴Webb Haymaker, *The Founders of Neurology*, Charles C. Thomas, Springfield, Ill., 1953, (Chapter on Wernicke, by Kurt Goldstein; on Duchenne, by Olin B. Chamberlain; on Erb, by Henry R. Viets; on Foerster, by Robert Wartenberg).

²⁵*Selections from the Clinical Works of, Duchenne de Boulogne*. Translated, edited and condensed by G. V. Poore, London, The New Sydenham Society, 1883.

possibility of Duchenne-Aran's disease representing a chronic form of poliomyelitis has never been discounted. The term progressive muscular dystrophy was first used by Erb in 1891.

Bulbar Paralysis

Another morbid entity studied by Duchenne (in 1858) is bulbar paralysis, or, as Charcot⁷ subsequently labeled it, labioglosso - laryngeal paralysis. Kinnier Wilson⁸ writes that "Duchenne described the condition so fully as to leave little for later observers to add." He found changes in the bulbar-pontine region of the brain. Even today it is doubtful whether the disease represents a syndrome of its own or whether Duchenne was right in thinking that "it can exist together with other muscular affections." Its kinship with amyotrophic lateral sclerosis was proved by Dejerine in 1883.

Tabes Dorsalis

In 1858 Duchenne gave an account of "progressive locomotor ataxia." The disease had been studied seven years earlier by Romberg⁹ in Germany who referred to it as *tabes dorsalis*. Romberg had correctly noted the shooting pains, the gastric crises and the characteristic disturbances of standing and walking as well as the spreading of the disability to the upper extremity. But he gave an erroneous explanation of the pathophysiological mechanism underlying the condition, saying that it consisted of "a decrease of motor power." Romberg thus missed the real cause of the motor disturbance, the lack of coordination, the tabetic ataxia. In order to prove that there is no decrease of motor power in *tabes*, Duchenne once "loaded a patient suffering from advanced progressive locomotor ataxia with a weight of a man without his ever flinching under it."

Duchenne mentioned syphilis as one, though not as the sole, cause of the disease and he prescribed iodide of mercury or potassium for treatment.

Under the influence of the teachings of Flourens that "the cerebellum is the exclusive location of the principle which coordinates the movements of locomotion," Duchenne expected at first to find the anatomical lesion of ataxia in the cerebellum. "I have to confess," he wrote, "that I was greatly surprised to find the cerebellum completely unaffected when I assisted for the first time at an autopsy of a subject who had died of locomotor ataxia." In the chapter dealing with the disease Duchenne reproduced an excellent drawing of an unstained cross-sectional preparation of the spinal cord from a tabetic patient, a woman, age 60, showing the presence of "the typical indurating process" not only in the posterior columns but also in the lateral columns as well as an "invasion of the outer part of the right anterior cornu."

It is a matter of considerable interest that neither Romberg nor Duchenne noted the absence of the "pa-

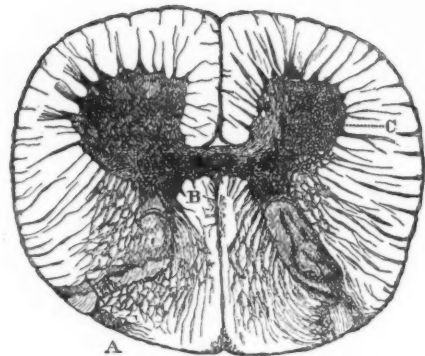


Fig. 3. Drawing of unstained cross sectional preparation of spinal cord from tabetic woman, age 60, revealing presence of "the typical indurating process" in the posterior columns as well as involvement of the lateral columns and of the outer part of the right anterior cornu.

tellar" reflexes in *tabes dorsalis*. It was Karl Otto Westphal of Berlin who described this cardinal symptom in 1873.

Studies of Coordination of Voluntary Motion

Duchenne subjected the entire striated muscular system to a functional analysis, so detailed and so complete, and interpreted his findings so well, that nothing comparable in importance has been added to the subject since. Duchenne arrived at the conclusion that "individual muscular contractions, that is, contractions of single muscles, are not a normal occurrence. Individual muscular contractions are produced artificially by means of local faradization or under pathological circumstances."

"Impulsive" and "Antagonistic" Muscular Associations

Duchenne divided the various types of muscular "association" which, as he pointed out, are involved in all human movements, into "impulsive" and "antagonistic." The former term he used synonymously with "synergistic," though he gave it at times a meaning different from that today applied; while in respect of the latter he distinguished between "moderating" and "collateral" muscular participation. He argued that some of the antagonistic muscles are "directly opposed to impulsive muscular associations," while others merely act as "moderators." They prevent "lateral deviations" of a limb, for example, and he refers to

⁶Emanuel B. Kaplan, *Introduction to translation of G. B. Duchenne's "Physiology of Motion," demonstrated by means of electrical stimulation and clinical observation and applied to the study of paralysis and deformities.* J. B. Lippincott Co., Philadelphia, 1949.

⁷J. M. Charcot, *Lectures on the Diseases of the Nervous System.* III Vols. Translated by George Sigerson. London, the New Sydenham Society, 1872.

⁸Kinnier Wilson, *Neurology*, III Vols., The Williams and Wilkins Company, Baltimore, 1955.

⁹Moritz Heinrich Romberg, *A Manual of the Nervous Diseases of Man*, II Vols., translated by Edward H. Sieveking, London, The Sydenham Society, 2nd ed., 1851.

this functional role as "collateral muscular associations."

Much of what Duchenne had to say about the coordination of human motion more than a century ago has been borne out by recent electromyographic studies. Once more, it is worthwhile to reflect on the simplicity of Duchenne's methods with which he arrived at such advanced concepts.

Stretch Reflex and Support Reaction

In order to show that under physiological circumstances muscles act in a coordinated manner and not in isolation, Duchenne pointed to the process of walking, during which "thigh, leg and foot are flexed on each other by the synergistic action of the muscles which act in each of these motions." He anticipated in part the classical discoveries of the stretching and flexion reflexes of the extremities by Sherrington¹⁰, and of the support reaction by Magnus¹¹.

Winging of Scapula

Duchenne produced winging of the scapula in normal, healthy subjects by stimulating the middle and lower parts of the serratus anterior muscle. In response to this stimulation the scapula moves obliquely upward, outward and forward. Conversely, he explained that the scapula follows the pull of the deltoid muscle if the serratus muscle is paralyzed, causing the medial angle to be displaced outward and upward.

Trendelenburg Phenomenon Discovered

By Duchenne

It is insufficiently known that the classical symptom generally associated with the name of Trendelenburg was first described by Duchenne. In his *Physiology of Motion* Duchenne writes as follows:

What surprised me mostly in the observation of individuals with atrophy of the gluteus medius and minimus was the inclination of the pelvis on the opposite side, when they were standing on the afflicted extremity. Being unable to elevate the pelvis, they bent their trunk strongly toward the side which rested on the ground to place it in the line of gravity.

The Human Hand

Duchenne gave a masterly analysis of the muscular mechanisms underlying the movements of the hand and of the thumb in relation to the second to fifth fingers. He showed that by faradization of the common extensor of the fingers, the proximal phalanges are extended, that the hand is extended; but that the two distal phalanges are held in flexion due to the pull of the flexors profundus and sublimis. Additional faradization of the interosseous adductors of the fingers is necessary to extend the two distal phalanges. Similarly, he demonstrated the different effects of faradization of the short abductor and of the external portion of the short flexor of the thumb respectively. He stressed the special importance in man of the flexor pollicis longus; "qu'il aide, en un mot, à l'exécution des travaux manuels qui sont à la hauteur de son intelligence supérieure."

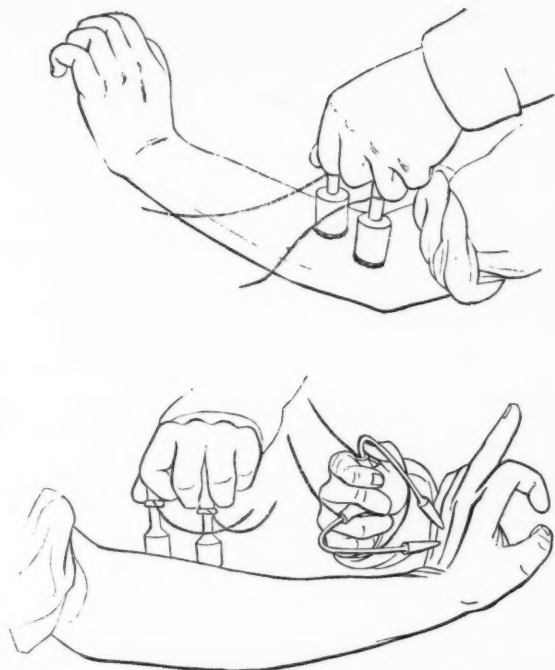


Fig.4. Faradization of the common extensor of the fingers extends the proximal phalanges and the wrist. The two distal phalanges are held in flexion due to the pull of the flexors profundus and sublimis. Additional faradization of the interosseous adductors of the fingers is necessary to extend the two distal phalanges.

Sir Charles Bell's Influence

Like many of his contemporaries, Duchenne was greatly influenced by the writings of Sir Charles Bell to whom Romberg in 1851 referred as "the William Harvey of our century." Duchenne shared Bell's views as regards "the power, wisdom, and goodness of God as manifested in the Creation"¹², and accepting the great English neuro-physiologist's philosophy he felt that the coordinative abilities of the muscular system of man reflect a divine purpose. Stimulated by Bell's studies on facial expression¹³ Duchenne published in 1862 a monograph entitled, *Mechanisme de la physiognomie humaine, ou Analyse electrophysiologique de l'expression des passions*. In this work he describes how the facial muscles "convey the varieties of man's state of mind."

Duchenne and Jackson

In his electrophysiological investigations Duchenne remained completely "sub-cortical." It is all the

¹⁰Charles Sherrington, *The Integrative Action of the Nervous System*, 1906 (Reprinted 1947 by the Cambridge University Press, England).

¹¹R. Magnus, *Körperstellung*, Berlin, Julius Springer, 1924.

¹²Sir Charles Bell, *The Hand, Its Mechanism and Vital Endowments As Evincing Design*, London, William Pickering, 1833.

¹³Charles Bell, *Essays on the Anatomy of Expression in Painting*, London, Longman, Hurst, Rees and Orme, 1806.

FIBRE NORMALE.

Fig. 84.

PREMIER DEGRÉ.

Fig. 85.

Fig. 86.

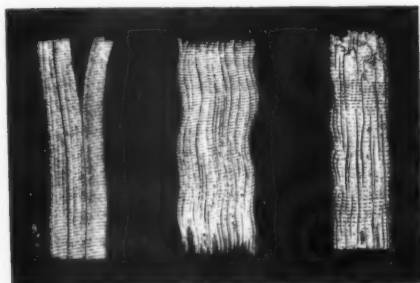


Fig. 88 Les fibres longitudinales ont encore conservé leur contractilité et sont ondulées.

DEUXIÈME DEGRÉ.

Fig. 87.

Fig. 88.

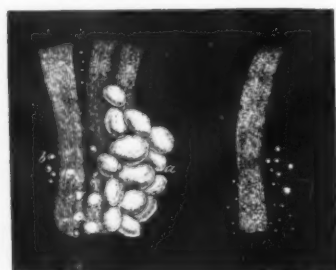


Fig. 89, 90. Les fibres longitudinales deviennent moins distinctes; les molécules de graisse (a), de plus en plus abondantes, les recouvrent presque entièrement dans la figure 90.

Fig. 5. Unstained samples of histological preparations from normal and diseased muscles obtained with "Duchenne's Harpoon."

more remarkable that he arrived at conclusions which are identical with those reached from clinical studies of the cerebral cortex by Hughling Jackson. Duchenne taught that "isolated muscle action does not exist in nature;" Jackson, that "the cortex does not know muscles but only movements."

Both men anticipated in part Sherrington's concept of the "Integrative Action of the Nervous System."

*Reception of Duchenne's Work
In France and Germany*

Duchenne's greatness was not sufficiently appreciated in Paris. Olin B. Chamberlain⁴ remarks that,

Duchenne's work was done without benefit of hospital appointment or academic chair. The Académie de Médecin and the Institut de France passed by his name, but he received recognition outside his native country, being elected corresponding member of the academies in such far-flung capitals as Rome, Madrid, Stockholm, St. Petersburg, Geneva and Leipzig.

It must have been gratifying to Duchenne that his researches were followed with considerable interest and understanding in Germany. He wrote in 1872:

Fig. 94. Les fibres longitudinales ont disparu. On ne voit que des molécules graisseuses très serrées et peu distinctes, surtout vers l'axe du faisceau.

TROISIÈME DEGRÉ.

Fig. 89.

Fig. 90.

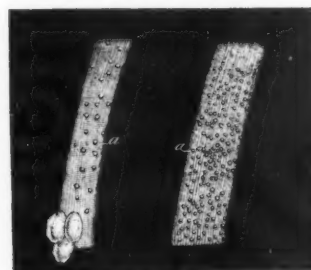


Fig. 92. La graisse devient plus abondante, plus diffluente, ce qui donne plus de transparence au faisceau musculaire.

QUATRIÈME DEGRÉ.

Fig. 91.

Fig. 92.

Fig. 93.

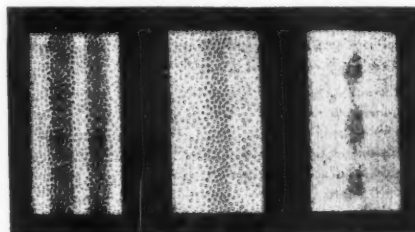


Fig. 93. On n'aperçoit plus de molécules de graisse distinctes; le faisceau se compose d'une masse amorphe.

The appeal which I made to observers was listened to in Germany where my researches in muscular pathology and physiology, as I am bound to acknowledge, have always met with a most cordial reception and have become popular sooner than in France.

He mentioned Griesinger and especially Billroth who "ventured to excise a portion of the deltoid muscle of a little boy with pseudo-hypertrophic paralysis in order to make a histological examination of it." It was this kind of study as well as a detailed pathological analysis of a similar case by Julius Cohnheim which gave Duchenne the idea of introducing a simple, clinical method of muscular biopsy to which Gowers referred as "Duchenne's harpoon." Another German scientist to whom Duchenne was attracted by common interests was the famous electrophysiologist Emil Du Bois Reymond of Berlin.

Wernicke Translates Duchenne in 1885

In 1885 Wernicke translated Duchenne's second great book, *Physiology of Motion*, into German. Otfrid Foerster, who in 1897 was Wernicke's clinical assistant, thus became acquainted with the contributions

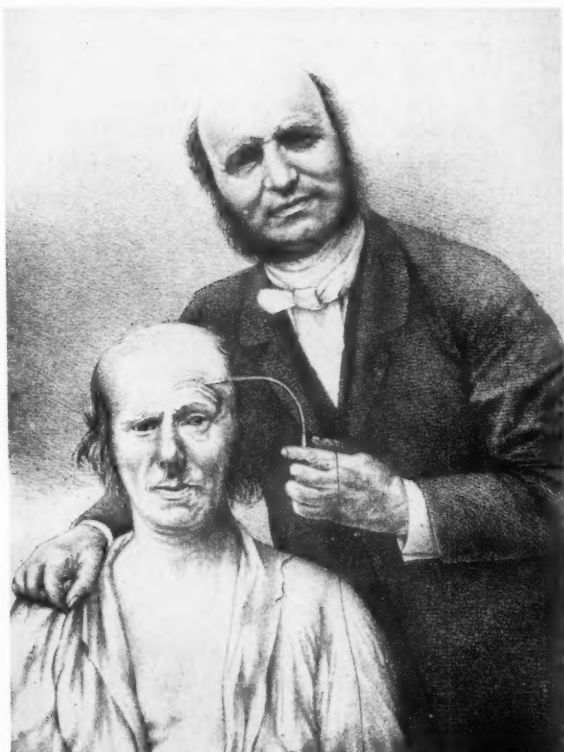


Fig. 6. Duchenne faradizing the left frontal muscle of a patient.

of the distinguished French neurologist. So keen was Foerster's enthusiasm that he spent the year 1898 in Paris under Djerine, Babinski and Pierre Marie. Emanuel Kaplan's *Translation of Duchenne's "Physiology of Motion" in 1949*

Though a *Selection from the Clinical Work of Dr. Duchenne (de Boulogne)* had been published under the auspices of the New Sydenham Society in London as early as 1883⁵, more than sixty years elapsed before his *Physiology of Motion* became available in English. It was only in 1949 that a translation by Emanuel B. Kaplan of New York appeared in which the author expresses himself to the effect that,

this book may be placed among the greatest books of all time, not on account of its historical significance, but because it contains an excellent record of the kinesiology of the entire muscular system, with very few exceptions investigated by one observer whose genius, perseverance and originality permitted him a deeper insight into the action of muscles than that given to many of his predecessors and perhaps most modern investigators in this field.

Obituary Tribute in *Lancet*

A letter in *The Lancet*, published soon after Duchenne's death (October 30, 1875) contains the following passage:

It may be said of Duchenne that under many adverse circumstances—the suspicions of confreres, the disputes as to priority, the difficulty of finding a field of study and experiment, as he had no hospital appointment—his reputation has come out clear and bright as an honest, hard-working, acute and ingenious observer, an original discoverer, a skillful professional man and a kind-hearted, benevolent gentleman.

COMMITTEE REPORTS

Continued from Last Issue

LIAISON—Vincent W. Andersen, Chairman

Correspondence has been maintained for the purposes of exchanging official bulletins and publications with thirteen organizations prominent in the rehabilitation field. Contact was made with six other organizations during the past year and an exchange was effectuated in four cases. The committee recommended that a chapter liaison program be instituted whereby each chapter would appoint one member to the national committee. This member would be responsible for contacting state and local chapters of other national organizations, to attend their meetings on occasion, and to otherwise attempt to establish a working relationship with these groups.

SCHOLARSHIP—Arthur D. Tauber, Chairman

The committee has received a total of \$666.72 as contributions to the fund. Announcement of the association grants has been made public and to date, four candidates have applied. All scholarship applications will be processed by the selection committee and announcement of the winners will be announced as soon as possible.

HISTORIAN—Harlan Wood, Chairman

Copies of all material from the national headquarters and all material submitted by the chairman of the chapters committee has been preserved as a part of the historical data of the APMR during the year.

PLACEMENT—William Zillmer, Chairman

35 requests to fill existing vacancies were received during the year; 24 referrals were made in response to this request, and at least 9 vacancies were filled as a direct result of these inquiries. Inquiries relative to employment in the field were received from a number of college seniors and the students were referred to the nearest hospital having a vacancy. The chairman counselled personally a group of physical education students from the University of Pittsburgh regarding opportunities in the field and job qualifications.

The committee recommended that some measures be adopted to equate the high standards of educational qualifications in the field with existing salary scales. It recommended that colleges adopt undergraduate programs which would qualify students as corrective

therapists. In regard to recruitment and placement, it was the opinion of the committee that these should be accomplished by chapter placement officers and coordinated by the national placement chairman.

SURVEY—Paul F. Fleer, Chairman

Surveys to determine (1) the number of association members who are performing corrective therapy

on both a regular and a part-time basis; (2) the number of corrective therapists employed in other than VA installations, and (3) to follow-up on a survey project begun last year; were completed and reported in February. A survey is now underway to determine from directors and administrators of non-government facilities, the status of corrective therapy within their institutions.

ASSOCIATION MEETINGS

Meetings of the Executive Board, Representative Assembly, Board of Governors and the General Assembly were held during the tenth annual conference at Augusta, Ga., June 23-39, 1956. The meetings were held for the purpose of acting on the recommendations of the officers and committee chairmen (summarized above and in our last issue) and to conduct new business. The Board of Governors (Executive Board and Representative Assembly combined) present at the meetings included President Frank Deyoe, President-Elect Arthur Landy, Vice President William Cully, Past President Louis Mantovano, George Heos, Lester Burrowes, Paul Beck, Leslie Root, Robert McIntyre and Rudy Jahn. Also present as proxies for absent members were George Devins, Everett Sanders, Thomas Fleming, Dr. John E. Davis, Charles Castle, Vincent McGrath, Clyde Coulson and M. Raymond Robinson. Major business conducted at the meetings is summarized below.

ACTION ON COMMITTEE RECOMMENDATIONS

Awards Committee. Recommendation 1 was approved with the addition of "when necessary" to the proposal. The recommendation now reads, "Awards voted but not received at the annual banquet will be presented by a local chapter on an appropriate occasion when necessary." Recommendation 2 which would limit the number of words in a nominating letter for an award was rejected. Recommendation 3 which designated January 1 as the deadline for the membership to file nominations for awards was approved. A motion to remove the category of "Fellow member" from the association rolls and to substitute a Fellow Award was approved. A motion to rule the President of the Association ineligible to receive the annual CT award was approved. A proposal to grant a Fellow Award to each member of the 1955-56 Executive Board was rejected.

Professional Standards. All four recommendations of the committee were rejected. Recommendation 4, "consideration for those who receive training abroad and are working within the field" was returned to the committee for clarification.

Chapters. Recommendation 3 relative to the collection of monies by the committee and its use was rejected.

Recruitment. Recommendation 2 relative to the use of scholarship funds for recruitment purposes was rejected.

Brochure. A committee consisting of Robert McIntyre, George Devins, and M. Raymond Robinson was selected to receive comments from the Board of Governors on the proposed brochure.

Constitution. A proposal amendment relative to the Representative Assembly election was discussed at length with no action being taken at this time. Reports of all other committees were approved as read.

OTHER BUSINESS

1957 Convention. Atlantic City, N. J., was selected as the site for the 1957 meeting. Host hotel will be selected at a later date.

Director of Publications. A stipend of \$600 yearly was voted the Director of Publications to be effective on July 1.

Annual Dues. The annual dues for active members were raised \$5.00 by the Board of Governors. Presumably, this would not take effect until July 1, 1957.

1956 Convention. A motion to accept a proposal from The Association of Medical Rehabilitation Directors and Coordinators was approved. The proposal asked that the AMRDC be allowed to join the APMR and AART in their joint convention in Chicago. The motion was approved in principle subject to concurrence by AART and the ability of the incoming President to work out details.

Change of Name. Discussions relative to the question of changing the name of the term "corrective therapy" to another designation were conducted at several of the meetings. No action was taken at this time, but the incoming President was authorized to appoint a committee to make a careful study of the problem and report its findings back to the Board of Governors.

Active Membership. A resolution to grant active membership in the association to Mr. Fritz Nissen of California was approved.

Certification. A motion to subscribe to the principle

of provisional certification with mechanics and interpretation left to the discretion of the Certification Board was approved.

Federal Agency Bill. Association representatives voted to officially endorse and support this bill provided that its basic philosophy is retained.

Elections by the Board of Governors. Dr. John E. Davis and Edward D. Friedman were nominated for the office of President-Elect. Dr. Davis, founder of the association and former Chief, Corrective Therapy, Veterans Administration, was elected by a majority. Roger H. Wessel was unopposed for the office of Editor-Elect.

Elections by the General Assembly. A slate proposed by the nominating committee (*The Journal* 10:4:133) was presented to the Assembly. Withdrawals were made by the following: William Cully for First Vice President; Stanley Wertz for Secretary; David Bilowit for Secretary; and Raymond Heaslet and Lester Burrowes for First Vice President. Mrs. Eleanor Stone, Charles Willhite, and George Nash were nominated for the office of First Vice President. Mrs. Stone, a member of the Physical Education staff at Seward Park H.S., New York City and former Treasurer of the association, was elected on the second ballot.

Charles Bader, Karl Klein, David Ser, Arthur Tauber, Philip Rasch, Charles Willhite and George Nash were nominated for the office of Second Vice President. Mr. Klein, a member of the Physical Education staff at the University of Texas, was elected on the second ballot.

George Nash, Paul Roland, Michael Yarosh, Chris Kopf and Philip Rasch were nominated for the office of Third Vice President. Mr. Nash, a member of the Corrective Therapy staff at the Wood (Wisc.) VA Center, was elected on the second ballot.

Lester Burrowes of the Corrective Therapy staff at the Jackson (Miss.) VA Hospital was unanimously elected to the office of Secretary.

Raymond Heaslet, Mario Andriolo, Joseph Evans, Van Goodsell, and Sidney Mackler were nominated for the office of Treasurer. Mr. Heaslet, Executive Assistant, PM&RS, VA Hospital, Tuscaloosa, Ala., was elected on the first ballot.

Resolutions. The membership of the Association for Physical and Mental Rehabilitation in convention assembled at Augusta, Georgia, June 23, 1956, accepted with regret, the resignation of Stanley H. Wertz as Secretary of the Association and passed the following resolution on the records.

Be it resolved that whereas, Mr. Stanley H. Wertz has served the Association faithfully and well for 5 years and whereas he has developed a membership record system that is now operating with unusual efficiency, the membership wish to express their appreciation for his unselfish devotion to duty, and accept his resignation with regret.

The membership of the Association for Physical and Mental Rehabilitation in convention assembled at Augusta, Georgia, June 24, 1956 wished to express appreciation for the outstanding report of Paul B. Bell, Chairman of the Research Committee and passed the following resolution:

Be it resolved, that whereas Mr. Paul B. Bell, Chairman of the Research Committee, has served the Association faithfully and well in the preparation of an annual report of the status of research by members of the Association, and whereas this report will be of inestimable value as a continuing set of guidelines for the future work of the Research Committee and whereas portions of this comprehensive report will be presented to the Joint Commission on Mental Illness and Health for such use as that national study Commission may deem desirable, the membership wish to express their appreciation for the outstanding contribution to the progress and growth of the Association.

The membership of the Association for Physical and Mental Rehabilitation assembled at Augusta, Georgia, June 24, 1956 wished to express appreciation for the faithful services of the Executive Board and passed the following resolution:

Be it resolved that whereas the members of the Executive Board have served faithfully and well, and whereas this unselfish devotion to the promotion of the growth and progress of the Association caused much curtailment of the time given to the responsibilities of wholesome family life, the membership wish to express, for the record, their appreciation for this unselfish devotion to duty.

"From Other Journals"

JOHN W. FERTIG, "Design of Medical Experiments," *Texas Reports on Biology and Medicine*, 13:758-767, Winter, 1955.

The purpose of an experiment is to measure the effect of one or more procedures or treatments on experimental subjects by comparison with some other treatment or with no treatment. The subjects to be used, objectives of the experiment and of the treatments should be clearly specified. A statistician must be a member of the research team from the start. The objectives consist of questions to be answered or hypotheses to be tested. Do not try to answer too many questions from a single experiment. Treatment must be clearly defined. Homogenous material may be used to reduce experimental errors, but generalizations to other materials cannot then be safely made. Subjects must be alike with respect to factors which are relevant for the measurements involved. Comparability is usually attained by some form of random allocation of the subjects to the various groups. Lack of objectivity may result from bias on the part of the observer or on the part of the subject. This generally involves giving the control group a placebo, which is not feasible when the treatment involves operations and similar procedures.

PJR

JOHN FRIEND, "The Effect of Repeated Testing on the Maximum Breathing Capacity in Normal Subjects," *Thorax* 10:359-360, December, 1955.

The maximum breathing capacity (MBC) may be used as an index of the ventilatory function of the lungs not only on one occasion but also, when the test is repeated at intervals, as an objective assessment of the progress of disease and of the effect of treatment upon it. This paper investigates the effect on the MBC of its repeated performance over a period of time. Thirty-five male medical students were used as subjects. When the MBC was tested repeatedly on one occasion, there was a significant improvement between the first and second tests only. Daily tests showed improvement between the first and second days only. Weekly tests demonstrated no improvement.

PJR

CHARLES ENGEL, "Changing of Disease Patterns: 'Disappearance of Diseases: New Diseases,'" *The Medical Journal of Australia*, 1:90-97, January 21, 1956.

Diseases and patterns of disease have changed in the past, are changing very much at the present time, and will change in the future to an even greater extent. Disease is the reaction of an individual to a given cause under special circumstances. No two individuals react to the causes of any disease in exactly the same way. The text books outline the approximate average of a disease. We must study the past to be alert to the future. Chlorosis has virtually disappeared. Its cause and pathogenesis were unknown and we can find no explanation for its disappearance. Ergotism disappeared with better methods of grain handling. The mass psychic epidemics of the Middle Ages have disappeared. The toxic type of scarlet fever is exceptional today. To a lesser extent there has been a change in diphtheria. Typhoid fever has become much rarer and milder. Pneumococcal pneumonia is no longer frequently observed. The severe forms of erysipelas are much less frequent nowadays. Today relatively few patients die from cerebro-spinal fever. The picture of gonorrhea has greatly altered. Acute rheumatic fever has lessened very much in incidence and the disease has become milder. The once violent epidemics of syphilis have almost entirely disappeared. Tuberculosis has dropped as a cause of death.

Many other diseases have become much milder, owing to better hygiene and therapy. Certain virus diseases have disappeared or are in the process of disappearing. Meanwhile new diseases have appeared. In first place is the wholesale change of normal flora in the bowels and the upsetting of the ecological balance in them called forth by the antibiotics. The epidemic haemorrhagic fever of Korea is a mystery. Severe alterations in the bone marrow caused by the greatly increased consumption of drugs with depressant action on the bone marrow have come greatly to the fore. Osteoporosis of the vertebrae, tense and painful breasts in women, and virilization of women are other results of treatment with certain drugs. New diseases have been reported in paediatrics, as a result of modern surgical techniques, from industrial causes, and from radiation. The latter may result in an immense variety of new hereditary diseases.

PJR

C. H. BARNETT AND D. HARDING, "The Activity of Antagonist Muscles During Voluntary Movement," *Annals of Physical Medicine*, 11:290-293, October, 1955.

The general belief that the activity of antagonist muscles during voluntary movement is governed by the principle of reciprocal innervation rests upon animal experiments in which the tendons of the muscles being tested had been detached from their insertions. Electromyographic studies showed that isometric contractions or slow movements of a joint in an unloaded limb the activity in the antagonist muscles conformed to this principle. When the limb was actively moved at moderate or fast speed against external resistance, the antagonist muscles were at first inactive and then contracted strongly. This contraction probably results from a stretch reflex and reduces the risk of ligamentous strains.

PJR

J. P. LOMBARD, J. G. GILBERT and A. F. DONOFRIO, "The Effects of Glutamic Acid Upon the Intelligence, Social Maturity and Adjustment of a Group of Mentally Retarded Children," *American Journal of Mental Deficiency*, Vol. 60: 1:122-132, July 1955.

A group of 28 children with an average age of 10 years and one month and an average IQ of 67.68, received glutamic acid over a period of seven months—25 grams a day in three daily doses. Control group of 25 children, average age 10 years, one and one half months, average IQ, 66.1, received similar testing and placebo. Before and after, the Stanford Binet test was administered. No statistically reliable difference in the score of the children receiving glutamic acid was noted.

JT

VICTOR NEGUS, "The Air-Conditioning Mechanism of the Nose," *British Medical Journal*, 4963-367-371, February 18, 1956.

It has been the custom to regard the nose of man as designed especially for the protection of the respiratory tract. The nose supplies a considerable amount of heat and moisture, but does not bring inspired air up to body temperature, nor to saturation point. This is corrected as the air passes down the respiratory tract, until in the terminal bronchioles it is at body temperature and is saturated with moisture. Use has been made by some mountaineers of a finely perforated copper shield over the nose and mouth to retain heat and moisture from the expired air. In many animals there is an increased area of specialized epithelium which is roughly proportional to the air conditioning surface of each species. The keenest scented carnivora have a very extensive system for warming and moistening purposes. Saturation of inspired air with moisture provides a means of entrapping olfactory molecules and depositing them on the olfactory mucosa. The physical process is thought to depend on variations of electrical current. The mucous membrane in certain species, as the rabbit, is a highly specialized structure designed to give up heat by radiation, and moisture by transudation and evaporation. In man there is no similar epithelium. If nasal humidification is designed for olfactory, rather than for respiratory functions, the description of the mucous membrane lining part of the nose as respiratory is incorrect.

PJR

P. O. ASTRAND, "New Records in Human Power," *Nature*, 176:922-923, November 12, 1955.

In 1937 it was reported that Lash, American distance runner, had attained an oxygen intake of 5.35/min., or 81.5 ml/kgm/min. In studies carried out at the Stockholm Kungliga Gymnastiska Centralinstitute in 1954 the Australian J. Landy reached an oxygen intake of 5.04/min., or 76.6 ml/kgm/min. His pulmonary ventilation was 133 /min.; heart rate 194; blood lactic acid (mgm. per cent) 108; height 179 cm.; weight 66 kgm. It is probable that a high aerobic capacity is an essential characteristic of people with great endurance.

PJR

ALBERT I. LANSING, "What is Aging?" *Bulletin of the New York Academy of Medicine*, 32:5-13, January, 1956.

Much work is being done with the problems of the aged, but little is being done on the problem of aging. A sound definition of aging cannot be formulated now. Theories such as autointoxication, failure of the cardiovascular system, or nervous system or particular organs are too simple to describe such a fundamental process. To be taken seriously is the concept that it is due to the deterioration with time of the protoplasmic colloids and insufficient rate of protophas self-duplication, or that it may be due to a progressive accumulation of toxic materials in the cells which decrease cell permeability. Aging is a process of unfavorable progressive change, usually correlated with the passage of time, becoming apparent after maturity, and terminating invariably in the death of the individual. PJR

Editorials

REGISTER YOUR VOTE

A new regulation of the Awards Committee restricts nominations for awards to the period from July 1 to January 1. It is therefore mandatory that any association member wishing to nominate a candidate for an award do so before the end of the current year. There appears elsewhere in this *Journal* explicit instructions on how to proceed in nominating your favorite candidate. Please comply with these simple rules and register your selection as soon as possible.

In the very near future, each active member will be sent a ballot to vote for new members of the Representative Assembly. This body, together with the Executive Board, forms the Board of Governors of your association. When you receive your ballot, don't procrastinate it, fill it in and mail it to the election chairman in your area. It is another way for you, as an individual, to take part in the affairs of your organization.

RECRUITMENT IN CORRECTIVE THERAPY

Announcement of the award of the first scholarships in corrective therapy should be gratifying to all APMR members. Although the initial outlay for scholarships is a very modest one, it is a welcome start in the right direction and one can only hope that the fund will grow in such a way that it will help to stimulate recruitment to the field where it is so badly needed.

The problem of the recruitment is particularly acute at this time and can be attributed to several factors, all of which are directly related to social and economic conditions prevailing in these post-war years. The majority of corrective therapists are qualified teachers, not only of physical education but of other subjects as well. With the school population and school construction at all-time highs the demand

for teachers exceeds the supply in many cases and school administrators are offering every inducement possible to bring qualified teachers back to that field; teachers' salaries have thus been raised accordingly and the rate of defection from the field of corrective therapy into teaching has increased recently. The demand for teachers has also hampered direct recruitment of therapists from teacher-training institutions. Operating simultaneously, these two factors have the effect of diminishing the professional therapy ranks at the same time as the source of supply is partially cut off. Although this specific situation may not exist within the ranks of other areas of rehabilitation, there are corresponding shortages in every branch of the field.

If the present industrial and economic boom continues, it is obvious that this situation will prevail. However, certain steps can be taken to help offset the trend. One such step would be to provide a more complete orientation in specialized physical education within the teacher-training institution. There are undoubtedly many students who are primarily interested in reconditioning, exercise and other facets of corrective therapy who have never been introduced to the work which is being accomplished in this area. A second step would be to increase opportunities for students to receive clinical training in a hospital situation where they can see corrective therapy in operation. A third step would be to investigate the possibilities of incorporating corrective therapy training on the undergraduate level to counteract what we expect will be a decrease in the graduate school ranks as a result of the demise of the GI bill. In the matter of salaries, we cannot be realistic without realizing that the salaries of therapists must be maintained at at least the teacher's level if we are to attract qualified personnel into our ranks.

RICHARD T. SMITH *et al.*, "Zoxazolamine (Flexin) in Rheumatic Diseases," *Journal of the American Medical Association*, 160:745-748, March 3, 1956.

As muscle atrophy develops, aching begins and stiffness becomes apparent. The treatment that alleviates the symptoms consists of rehabilitation exercises. Adequate exercises are impossible to give until warm-up has been completed. Time for this may vary from a few minutes to a half a day. A safe, well-tolerated drug, capable of relieving the muscle spasm and stiffness rapidly, would be a rational therapeutic measure. One hundred rheumatic patients were given 250 mg. or 500 mg. of zoxazolamine orally three or four times a day. An over-all effectiveness of 85% was reported. In thirty patients the toxic reactions were easily controlled; 13 patients required discontinuance of the therapy due to severe side effects.

PJR

JEROME W. GERSTEIN, "Mechanics of Body Elevation by Gastrocnemius-Soleus Contraction," *American Journal of Physical Medicine*, 35:12-16, February, 1956.

With a few exceptions, the lifting of the body by the gastrocnemius-soleus muscle group has been explained on the basis of a second-order lever system. However, raising the body on the toes may be more accurately described on the basis of a first-order lever system, with the fulcrum (talocrural joint) between the resistance (body weight) and the muscle force. On normal standing the line extending vertically through the center of gravity passes through the talocrural joint or slightly anterior to it. As soon as standing on the toes is attempted the center of gravity shifts to directly over the base (phalanges). This indicates that the body weight produces no torque about the metatarsophalangeal joint but does produce a torque about the ankle joint. This is a first-order lever system.

PJR

Book Reviews

"Administration of Tests in Physical Education," by Raymond A. Weiss and Marjorie Phillips. (St. Louis: The C. V. Mosby Company, 1954. 278 pp. \$3.50. Paper)

The purpose of this volume is to provide a manual for laboratory training in the administration of tests in physical education and a handbook for ready reference in the field. It furnishes detailed instructions for administering the tests and is designed to supplement rather than to replace the information found in texts on the subject of measurement. Areas covered include anthropometry and body mechanics, attitudes and behavior, circulatory-respiratory, general motor skills, motor and physical fitness and sports skills. Each test description includes information on bibliographical reference, purpose, sex and age level, test items and equipment, leadership requirements, time requirements and numbers that can be tested space planning and floor diagrams, organization of subjects, instructions, scoring, hints, study questions, references, and, where possible, norms. Anyone engaged in testing, or in teaching the technique of testing should find this a very useful and convenient compilation of the best of the current tests.

—PJR

"Services for the Disabled." (London: Her Majesty's Stationary Office, 1955. 88 pp. .81 d plus 5c postage). American Agents; British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.

This booklet is an account of the services provided for the disabled by the British Government through the original legislative establishment (1943) of the Standing Committee on the Rehabilitation and Resettlement of Disabled Persons consisting of the Ministries of Education, Health, Labour, Pensions and National Insurance and the legislature of 1946 known as the National Health Service Act.

The contents give a complete breakdown of the services and facilities provided in the total rehabilitation process as performed in the United Kingdom. They establish the various categories of patients and enumerate the treatments and various rehabilitation opportunities provided in each classification. The material is interesting reading and very informative. It shows the positive aspects of treatment as offered by the British Government for its disabled citizenry.

HJB

"Alcoholism," by Ruth Fox and Peter Lyon. (New York: Random House, 1955. 208 pp. \$3.00)

This is a lucid presentation of the scope, cause and treatment of alcoholism. Statistical materials are dealt with in a light and interesting manner. The writers discuss the reasons people drink and the developmental phases of drinking which lead to pathology. The characteristics of alcoholics are described, and the therapy involved in treating them is developed. One interesting and useful chapter called "Sources of Help" lists by states a large number of groups and agencies which deal with the treatment of alcoholism. The work of Alcoholics Anonymous is described. Considerable material obtained from the clinical experiences of the writers is presented. The book is primarily for the layman and the alcoholic, or members of the alcoholic's family. It is factual, clear and uncomplicated in style, although at times seemingly over-simplified. There is a considerable amount of practical advice and suggestions which would be very helpful to both therapists and patients. The book has an optimistic ring and should provide encouragement to those engaged in working with alcoholics. In this respect it should prove of value to the general medical practitioner, who may be rejecting in his attitude toward them.

—MPM

"Cardiac Therapy" by Harold J. Stewart, M.D. (New York: Paul B. Hoeber, Inc., 1952. 577 pp. \$10.00)

With a new interest and greater understanding of heart disease by the layman and a greater than ever scientific knowledge of the heart and its disease by the physician, a book that offers a ready reference as to the suspected cardiopathy and its treatment is a necessity in the practice of medicine today. And though *Cardiac Therapy* was written primarily as a book on treatment, it includes a brief discussion of the cardiac pathology to be treated. This is essential, and without laboring this phase of the topic, the author covers the anatomical and pathological physiology in a notably clear fashion, thus enabling the therapist to understand the logical approach to the entity to be attacked therapeutically.

The book begins with a chapter on Congestive Heart Failure (the eventual result of all heart disease if other calamities do not intervene) and, after describing the manifestations of this symptom complex, proceeds in an exhaustive manner, though lacking in verbosity, to offer a therapeutic regimen from the initial mild or dramatic emergency to the chronic case which covers the presenting symptoms of the underlying pathological physiology to its psychological and sociological implications. The varying drugs, especially the digitalis group, and other efforts of treatment are presented in light of the experience of the author.

Drugs so essential to the proper management of the cardiac patient receive proper attention, always with the comment of the author's own preference from experience. A complete chapter is given to digitalis, another to the mercurial diuretics, one on the anticoagulant drugs, and the final chapter is dedicated to the diet in heart disease. Cardiac surgery is covered in one chapter as a whole, but also integrated in the discussion of its use along with other therapy for all cardiac pathology amenable to surgical attack.

The chapter on congenital heart disease justifies an attitude of optimism not present in years past, and discusses newer diagnostic methods, the change in prognosis due to treatment of subacute bacterial endocarditis, the surgical contributions in this field and the details of the procedures. Also included is the importance of prevention such as in rubella of pregnancy.

In general, *Cardiac Therapy* is an excellent reference book for anyone responsible for treating the cardiac patient, in spite of the changes since the book was first published. If the physician is aware of recent advances in this field (e.g. the now established value of A.C.T.H. and Cortisone in rheumatic fever) this book should be a valuable addition to his reference library.

—MLB.

"New Concepts of Healing," by Alice Graham Akin. (New York: Association Press, 1956. 262 pp. \$3.50)

This is a revised American edition of a book with the same title first published in Great Britain in 1955. An introduction by Wayne E. Oates, professor of Psychology of Religion at Southern Baptist Theological Seminary, correlates the volume with religious healing in America. The appendices (150 pp.), also compiled by Oates, documentarily reports on approaches to religion and health in the United States. There are unusually complete reports of (1) Educational Resources for Pastoral Education, (2) Studies of Spiritual Healing and (3) medical statements (such as J. B. Rhine on parapsychology) and transactions of conferences on Ministry and Medicine in Human Relationships given at the New York Academy of Medicine in 1950. In this volume Miss Akin ably presents the need for closer collaboration of medicine, psychology and religion if scientific truth, free of charlatanism and superstition, is to be established. Her writing shows a bias toward Jungian analytical theory and apparently the Junian school is the prevailing concept in British Episcopalian pastoral psychology. Oates recognizes this fact in his statement that she shows no acquaintance with Sullivan, Rogers, Booth or Frankl, who emphasize the interpersonal I-Thou character of the process of healing as counter to the I-It of Jung. (Akin).

—DCL

"Crucial Issues in Philosophy," by Daniel S. Robinson. (Boston: The Christopher Publishing House, 1955. 285 pp. \$5.00)

Therapists who are sympathetic with Horney's emphasis on the process of adaption to life situations will grant that philosophy should have an important role to play in the preservation of mental health. Yet, as ordinarily taught, academic philosophy has no observable relationship to the practical problems of the life which it purports to interpret. In **Crucial Issues in Philosophy** Robinson attempts to relate theory to reality. The book gets off to a good start. In the first half he discusses the causes of the current crisis in civilization, the ethical implications of atomic energy, democracy, politics, etc. If this is a representative of only one side of philosophy (ethics), it is still very much worth reading and will help those confused by current problems to orient their thinking. Therapists in N. P. hospitals will be especially interested in his description of Therapeutic Positivism, a philosophy which seeks to clear the mind by purging it of impractical questions. The second half of the book is not so valuable for the general reader. Discussions of the background of Royce's thought, Royce's concept of modes of action, the precursors of Cartesian thought, etc. will be of interest only to other philosophers, who presumably, will already be familiar with the material in the first half. Yet even in this section there are gems to be found. Lange's formulation of the root defect of our age as a scientific materialism in which the materialists themselves become the pillars of the churches is certainly a philosophical justification of Horney's thesis. Robinson refers to von Hartmann as a precursor of Freud; it is a pity that he does not elaborate on this statement. Because the author has mixed material for the general reader with that for the specialist, the book is not wholly successful and will not entirely please either party. Yet in part it does something that has long needed doing. The reviewer strongly recommends that the thoughtful general reader peruse those parts designed for him. There is much to be gained from them, and the parts written for the specialist may be skipped without reducing the value of those read. This is popularization in its finest sense—partly because of the remarkable clarity of the style of writing—and we shall look forward to further works from Robinson's pen.

—PJR

"You Do Take It With You," by R. DeWitt Miller. (New York: The Citadel Press, 1955. 238 pp. \$3.50)

The professional career of hospital personnel is surely one of life amidst death. In these days of logical positivism, pragmatism, existentialism and other philosophies of skepticism, it becomes increasingly difficult to comfort either the dying or their survivors by urging upon them religious assurances which are based on faith alone. In this book one of our leading students of psychical research reports his investigations of psychic phenomena and the conclusions to which they have led him. In general his findings substitute what man has always believed—that there is an entity—Miller calls it a "second body"—which survives the dissolution of the earthly envelope. The net result of his work is to put a floor of evidence (which varies greatly in creditability) under the traditional belief in life after death. If he reports nothing to confirm archaic beliefs in eternal damnation and Calvinistic theories of predestination, that would seem to represent a distinct gain. In general this would be an excellent item to place in the hands of those who have recently lost loved ones or who themselves face death. Unfortunately, there are sections with which the thoughtful reader will be most unhappy. The discussion of Borley Rectory presumably was written prior to the publication of the Dingwall, Goldney and Hall study. It is more difficult to account for the favorable comments accorded *Bridey Murphy*. This work was given a critical review here in the March-April 1956 issue and has since been thoroughly discredited. The inclusion of books by Jessup and Wilkins among his "highest highlights" is even more surprising. These two authors have so uncritically accepted and cited demonstrably inaccurate data that all their writings have become suspect. Inclusion of such authors involves the risk of damning reputable source material by "guilt through association."

—PJR

"The Physics and Chemistry of Life," (New York: Simon and Schuster, 1955. 270 pp. \$1.00) Paper.

This is a collection of articles originally published in the *Scientific American* between 1948 and 1954. It comprises five sections: The Origin of Life, The Molecules of Life, The Molecule of Heredity, Enzymes and Energy, Cell and Organism, Muscle, Nerve and Brain. Each section is made up of two to four papers, arranged so as to provide continuity to the theme of the book. Most of them are written by authorities well known for their work in their respective fields. The accent is on the development of theories—the first chapter reaches the fascinating conclusion that there must be at least 10 million million planets like ours in the universe and that wherever life has arisen the organisms must be fundamentally the same! Obviously no one reviewer is competent to assess the value of each article. In some cases the material is dated by more recent publications—Szent-Gyorgyi's paper on "Muscle Research" was apparently written prior to his book *Contraction in Body and Heart Muscle* and, of course, does not deal with the questions about the role of ATP in muscle contraction recently raised by Mommaerts. At the price the book represents an excellent value, even for those who read only selected portions. It is recommended to all those seriously interested in the study of the stuff of which living organisms are made.

—PJR

"Nutrition and Recipes for Progressive Resistance Exercise," by Richard Alan Poel. Grand Haven: The Richard Alan Company, 1956. 60 pp. \$1.00. Paper)

As the title indicates, this booklet is designed for the use of weight trainers. While it may be desirable to flatter their ego a bit, the reviewer knows of no scientific evidence to justify the statement that weight training "increases the size and efficiency of the heart and lungs . . . improves the glandular functions." The body of the text is a simply-told description of the basic principles of diet and nutrition, plus a few recipes of the "health food" type. It is commendably free of fadism and seems well adapted to the audience for which it is intended. An Appendix contains some tables of constituents of food portions and a short bibliography. Some of the books cited are older texts and should be replaced by the use of the most recent editions. Bogart's *Nutrition and Physical Fitness* might well be added.

—PJR

"The Human Body," by C. H. Best and N. B. Taylor. (New York: Henry Holt and Company, 1956. Third Edition. 723 pp. \$6.75)

The names Best and Taylor will be immediately recognized by every Corrective Therapist as those of the authors of one of the texts basic to their specialty—"Physiological Basis of Medical Practice." The present volume appears designed for the use of students in the upper division of high school or the lower division of college. It is especially distinguished by the simplicity and clarity of its presentation. In this reviewer's opinion it should make an excellent text for use in non-professional courses at an introductory level. By the same token it lacks the detail necessary for the Corrective Therapist or other professional student. This is especially evident in the discussion of the muscular system. The chapter on "Muscular Exercise and Physical Training" affords only three and a half pages of very general description. References are grouped in a few pages in the Appendix. Under "Muscle" there is only one listing—Schneider and Karpovith (sic), "The Physiology of Muscular Contraction." Presumably this refers to Schneider and Karpovich's "Physiology of Muscular Activity," an obsolete text which was replaced some years ago by Karpovich's volume of the same name. Ackerknecht's "A Short History of Medicine" (reviewed here in the January-February, 1956 issue) might well have been included under "History of medical sciences." Garrison seems much too detailed for the average student at the level for which this book is designed. Included in the Appendix are tables of weights and measurements, contents of foods and other useful data. An excellent glossary completes a text which should find a wide general acceptance in non-professional courses.

—PJR

"Sociology And The Field of Mental Health," by John A. Clausen (New York: The Russell Sage Foundation 1956. 62 Pages, 50c)

This somewhat technical but readable pamphlet was prepared for the American Sociological Society and is addressed primarily to persons in the field. It obviously has been designed to stimulate interest and to motivate sociologists toward work in the field of mental health. Nevertheless, it is rich in ideas which anyone engaged in mental health or mental hospital work might well use in planned study or research in the area of social or cultural stresses in our times and society. The tendency for those with dynamic clinical backgrounds to overlook social and cultural factors in their study and treatment of the mentally ill is recognized along with the apparent reluctance of the sociologist and cultural anthropologist to involve themselves in collaborative study with those of other disciplines engaged in caring for and treating the mentally ill. Despite this apparent schism the many valuable contributions of the sociologist in the field of mental health are briefly reviewed.

The bibliography contained in this pamphlet includes a wide variety of material of recent origin referable to cultural aspects of mental illness and treatment and interdisciplinary efforts to solve this problem.

One feels, while reading this pamphlet, that the author, who is Chief of the Laboratory of Socio-environmental Studies, National Institute of Mental Health, has forcefully and objectively stated the case for a more integrated interdisciplinary approach to the whole field of mental health and the treatment of the mentally ill. JPT

"Human Kinetics and Analysing Body Movements," by T. McClurg Anderson (London: William Heinemann Medical Books Ltd., 1956. 287 pp. \$4.20).

Readers will recall Anderson as the author of an article on kinetics which was reprinted in the July-August 1955 issue of this *Journal*. The term "kinetics" refers to the "nervous and muscular factors as they react to and influence mechanical forces acting upon the body." The present book would seem to be his basic text. It is divided into three parts: Neuromuscular Mechanisms, Methods of Approach and Application of Principles. The latter section deals primarily with track and field (the author has trained Olympic runners), swimming and lifting. Here and there statements appear with which one might take issue. The principle of reciprocal innervation has largely been superseded by that of cocontraction, and the analysis of posture appears to ignore the results of the energy studies that have been made. The work is profusely illustrated with line drawings and has an index. Probably the closest American counterpart is Scott's *Analysis of Human Motion*. The text is highly recommended to all students of body mechanics, particularly track and field coaches and individuals concerned with industrial occupations which are characterized by the development of excessive fatigue or muscular strain. Corrective therapists who conduct classes in body mechanics for hospital aides and other personnel will find the principles which Anderson sets forth very helpful in placing their teaching on a sound kinesiological basis. Particular attention should be given to his discussions of the placement of the feet. "Footwork" is the subject of much discussion in athletic circles but probably few are clear just what they mean by the term. The author gives some of the best discussion of this important subject that the reviewer has ever seen. PJR

"Weight-Lifting Handbook and Leadership Guide," by M. H. Woolf. Allston, Mass.: Games & Athletic Equipment Co., 1954. 17 pp. \$2.50)

This is a mimeographed pamphlet prepared for the purpose of introducing interested persons to weight training and weight lifting. It is unfortunate that the terms weight-lifting, body building and weight training have been used synonymously. Each of these has a separate meaning, and to mix them can only result in confusion. An orientation section answers common questions. It is stated that weight training does not make a person "tight". This is contrary to the personal experience of the writer and certainly the

statement requires modification in view of the recent study by Massey and Chaudet. The statement that "muscles that contract while their opposing muscles relax are referred to as 'antagonistic' muscles" shows some confusion of understanding. This section needs to be rewritten with the principles of co-contraction in mind. Several pages are devoted to sketches illustrating various exercises. It is surprising to see the lateral raise described as a "Chest expanding exercise." Certainly this should develop the pectoral muscles but it is not clear how it can expand the chest. The chart of recommended weights for beginners does not take the size of the individual into consideration and can be used only as a very rough guide. A few pages are devoted to a description of weight lifting techniques and a few to suggestions for a program for clubs and schools. With the exceptions noted, the text is, in general, an acceptable introduction to the subject. No outlandish claims are made for the benefits of weight training and the author has clearly given much thought to this subject. However, the price seems excessive in view of the fact that Murray's book (reviewed here January-February 1955) can be bought for \$1.75. —PJR

"Perspectives in Physiology," edited by Ilza Veith. (Washington, D. C.: American Physiological Society, 1954. 171 pp. \$3.00)

On September 4, 1953 a Conference on the Future and Limitations of Physiology was held at Montreal. The first third of this little book consists of papers presented at that conference, dealing mostly with the general history and philosophy of physiology. The remainder presents individual reports on the present situation of this science in twelve different nations. These were written by members of the panel at the symposium. Houssay's contribution on Argentina depicts what happens under a dictatorship and illustrates the value of private colleges in the free world. In Austria the cost of living has increased 10 times, but professor's salaries have increased only four times—a condition that will have a familiar sound to corrective therapists. The University of Copenhagen has a chair in the Theory of Gymnastics (physiology of exercise). Hoffman gives a gloomy picture of conditions in Germany. Physiology appears to be in a flourishing state in Japan, but it is recognized that language barriers have prevented their research from receiving international notice. Corrective therapists will especially regret this, since nerve-muscle physiology is reported to be the predominant field of interest. In Sweden there is a chair of Physiology of Hygiene of Bodily Exercises. From a world view the picture is everywhere similar: almost every writer complains of low pay, few openings and little opportunity for promotion. The remedy seems to lie in government action, although the contributions of certain private organizations, particularly the Rockefeller Foundation, have been extremely generous. —PJR

"Health Yearbook 1955," edited by Oliver E. Byrd. (Stanford: Stanford University Press, 1956. 339 pp. \$4.50)

The thirteenth issue of this yearbook introduces several changes. The articles selected are ones that have been published during the preceding calendar year, instead of from July, 1 to June 30. Three new chapters have been added: Physical Fitness, Dental Health and Sight, Hearing and Speech. Dr. Byrd has surveyed some 1800 articles published during 1955. From these he has summarized 261 in this *Yearbook*. The summaries are grouped under topic headings, such as Nutrition and Health, Chronic and Degenerative Disorders, Health and the Physical Environment, etc. Each section is introduced by a few paragraphs which summarize the summaries. Thus in one or two pages the reader can obtain a picture of the advances in health understanding made during the past year, and have available a reference to more detailed information on the subjects in which he is especially interested. The bibliography is in a separate section at the back of the book and both an Author Index and a Subject Index are provided. The text appears designed primarily for the use of teachers in health education, hygiene and similar classes. It should prove a very useful and convenient aid to keeping the teacher's knowledge up to date. PJR

"How to Live 365 Days a Year," John A. Schindler, M.D. New York: Prentice-Hall, Inc., 1956. 222 pp. \$4.95).

This book has already won the favor of the public and has been listed in the first ten best non-fictional sellers for some time. The copy reviewed is the tenth printing of this publication.

It is an interestingly written approach to the problem of E.I.I. (Emotionally induced illness) which is said to comprise better than 50% of the complaints being treated by medical doctors.

Dr. Schindler writes the book with the warmth of the old general practitioner giving fatherly advice to his patients. The first section is devoted to an explanation and education process concerning the relationship between the emotions and the autonomic nervous system and the endocrine gland system. The second section deals with methods of alleviating and preventing emotionally induced illnesses—the emphasis being placed on achieving emotional stasis and maturity. The key thought of the whole process according to the author is to keep one's, "—attitude and thinking, calm and cheerful."

The author's basic psychological method of treatment is through the **learning-maturity** concept. This concept is the direct antithesis of Freudian psychiatry. The emphasis of the learning-maturity concept is on an improved approach for the present and future through explanation and education rather than ventilation of the past as practiced in traditional psychiatry.

The book is written so that it can be readily understood by the average layman, resulting in an over-simplification in various areas of psychology and physiology.

—HJB

Chapter Activities

Midwest Chapter

The tenth meeting of the chapter was held at Younkers Restaurant in Chicago with Harry Hicks presiding. Norman Tenner presented a report on his attendance at the national meeting of the American Association for Health, Physical Education and Recreation. Robert Shelton of the University of Illinois gave a talk on the training of corrective therapists, describing some of the problems of recruitment in this field. Mr. Shelton announced that a new summer course in corrective therapy is being offered by Illinois in connection with the Veterans Administration. The chapter voted to appoint a committee to contact colleges in the Chicago area regarding clinical training. Frank Hazelton of Cedar Rapids, Iowa described the program which he has instituted at the YMCA in Cedar Rapids under the sponsorship of the Easter Seal Fund. Patients treated under the rehabilitation program are prescribed by their personal physicians and range in age from 14 months to 72 years of age. Both male and female patients are treated in the center which has a 4000 gallon warm water therapy pool and a 30'x40' therapy clinic. The next meeting of the chapter will be held in Chicago, October 7.

New England Chapter

A meeting of the chapter was held on May 18 at the Boston VA Hospital. Two clinical demonstrations of corrective therapy techniques were presented, one by Alfred Ellison and another by Don Giles. Mr. Ellison demonstrated ambulation techniques and self care activities for neurological patients while Mr. Giles demonstrated techniques used at the Brockton VAH in treating chronically ill, regressed types of psychiatric patients. The nominating committee has offered the following names for consideration as chapter officers: for President, Everett Sanders, Donald Giles and Robert Hodgdon; for Vice President, Walter Wilkins, Joseph Colello and Romeo Laramée; for Secretary-Treasurer, Frank Dignan, Roberto Santana and Thomas Rowley. The election will take place September 25 at the next meeting, to be held at the VA Hospital, West Roxbury.

News and Comments

PEACETIME VETS NOT ENTITLED TO HOSPITALIZATION

Veterans with service only during peacetime are not entitled to Veterans Administration hospitalization without service-connected disabilities. VA announced in answer to inquiries.

The only conditions under which peacetime veterans may be admitted to VA hospitals, the agency said, are:

1. If they were discharged under other than dishonorable conditions for a disability incurred in line of duty; or,

2. If they are receiving VA compensation for a service-connected or service-aggravated disability.

VA said peacetime service for the purposes of hospitalization is any period of active service that occurs before or after a war and does not extend into a war period, as defined by Congress. For example, VA said, all persons who entered service for the first time on or after February 1, 1955 are peacetime veterans for the purposes of VA hospitalization because the Korean conflict officially was ended the day before, January 31, 1955.

Another period of peacetime service for the purposes of VA hospitalization is between December 31, 1946, when World War II was declared ended for all except a few, and June 27, 1950, when the Korean conflict started.

A third period of peacetime service for the purposes of VA hospitalization occurred between the two World Wars—December 12, 1918, when World War I ended for all except a few, and December 7, 1941, when World War II started.

A fourth period of peacetime service for the purposes of VA hospitalization occurred between July 4, 1902, when the Spanish-American War ended for all except a few, and April 6, 1917 when World War I started.

For the vast majority of veterans who served only during the foregoing periods, VA hospitalization may be provided only under the eligibility requirements for peacetime veterans established by Congress, VA said. Special eligibility requirements apply to peacetime veterans who have been retired from active peacetime service. VA said these veterans should check their eligibility with VA before applying for hospitalization.



Research Team Taking Electrocardiograms on Olympic wrestlers

Gene O'Connell, of UCLA operates the machine as it records the ECG of Ernie Fisher, AAU champion. Bob Fisher of the Air Force team, Dr. P. J. Rasch, and Dan Hodge, who will represent the U. S. in Graeco-Roman wrestling, look on.

VA ENLARGES RESEARCH PROGRAM

A broader attack upon the "unknown" in man's major diseases will be started immediately by Veterans Administration. VA said an enlarged medical research program will be conducted with the \$10,000,000 that Congress appropriated for fiscal year 1957, beginning July 1, 1956 — \$4,300,000 more than was appropriated last year. Most of the increased medical research will be concentrated in four areas of major diseases: neuropsychiatric, cardiovascular, cancer and leukemia, and geriatrics.

VA also will expand its research program in tuberculosis, in the fungus diseases which resemble tuberculosis, and in the infectious diseases. In addition, VA said, renewed emphasis will be placed on individual research projects, such as the isolation and identification of the factors which produce man's greatest killer, hypertension; the cause and nature of arteriosclerosis; the cause and nature of metabolic diseases, and the brain areas where epilepsy and related nervous disorders originate.

VA said it further plans to enlarge its cooperative study of drugs, old and new, for the treatment of specific diseases — a field in which the agency has pioneered with outstanding success because of its many hospitals, its large patient load, and its uniformity of approach. VA and the armed forces already have achieved international recognition for their cooperative study of the so-called "wonder drugs" for tuberculosis. The findings of this study have been adopted by medicine throughout the world for the more successful treatment of one of man's oldest disease. This study will be extended and strengthened, VA said.

Other cooperative chemotherapy studies will be continued or instituted with the new available funds, VA said. They are:

1. The chemotherapy of multiple sclerosis for which no known cure is available.
2. The chemotherapy of psychiatric disorders, with special emphasis on the new tranquilizer drugs.
3. A cooperative study of the treatment of hypertension, with special reference to the use of newer drugs.
4. The chemotherapy of cancer, co-sponsored by the U. S. Public Health Service, the American Cancer Society and the U. S. Atomic Energy Commission.

In addition to these cooperative drug studies, VA said it will continue other types of cooperative studies such as those on the changes in pulmonary function due to aging and disease, and on the effects of brain surgery in the treatment of schizophrenia.

VA, with the help of the National Research Council and the Armed Forces Institute of Pathology, has accumulated extensive experience in the analysis of past clinical records, especially of World War I veterans, for the purpose of studying the life history of diseases from military induction onward. Based on this experience, VA will conduct two important follow-up studies to make an evaluation of the natural course of coronary artery disease and coronary thrombosis, and an evaluation of the long-term results of chemotherapy of tuberculosis in which VA will study the fate of TB veterans treated with the new drugs since 1946 so as to evaluate the end results of different drug treatments.

In all of these studies, VA will be advised by the National Research Council Committee on Veterans Problems, the Statistical Agency of the National Research Council, and the Advisory Committee in Research of VA composed of outstanding leaders in American medicine who review the medical research programs in their own fields of specialization.

VA STATES POLICY ON GUIDE DOGS FOR THE BLIND

Guide dogs, obtained at no cost to them or the Government, are being used by approximately 10 percent of the more than 2,000 World War II veterans who have lost their sight, Veterans Administration reported. The veterans using dogs selected them as best suited to their individual needs.

Harvey V. Higley, Administrator of Veterans Affairs, said the relatively small proportion using dogs substantiates the opinion of dog guide experts that not all blind people desire, or can use, dog guides effectively. The figure also emphasizes the basic VA policy to accord blinded veterans freedom of choice between dog guides and other methods by which blind people get from place to place, he added.

Mr. Higley issued the statement after a conference with officials of the Seeing Eye, Inc., a private philanthropy in New Jersey and the nation's pioneer dog guide school. He emphasized that since the development of dog guides is a specialized service adequately provided by existing private agencies, VA has no intention of training dog guides.

As the first step in mobility training at the VA rehabilitation center in Hines, Ill., Mr. Higley said, all blind veterans learn to use the "long cane" through techniques developed by Dr. Richard Hoover. "While the cane method has proved efficient and adaptable for the great majority of veterans," Mr. Higley said, "they will continue to receive detailed information regarding dog guides and other methods of getting about on their own."

George Wernitz, Jr., executive vice president of the Seeing Eye, Inc., reported that the number of blind people, veterans and non-veterans alike, who can use dogs is limited because of other physical limitations and individual differences not related to blindness. "Nevertheless," he stated, "all agencies serving blind people, including veterans, have a responsibility to assist their clients in determining their own capabilities and the best means available for realizing them. Experience clearly reveals that some blind people, particularly those who earn their own livelihood, operate more effectively with a dog, and we must not discount that experience in counseling blind people."

VA TO EVALUATE MENTAL PATIENT CARE

Twelve neuropsychiatric hospitals of Veterans Administration are prepared to conduct medicine's first extensive evaluation of mental patient care to learn which treatments best promote the improvement or recovery of mentally disturbed patients. Dr. Jesse F. Casey, director of VA's psychiatry and neurology service, said each of the 12 hospitals has appointed a coordinator for its phase of the project. He said the coordinators and hospitals are: Dr. Robert Walker, Brockton, Mass.; Dr. Hiram Gordon, Fort Lyons, Col.; Dr. Henry Peters, Jefferson Barracks, Mo.; Dr. David Levine, Lyons, N. J.; Dr. Robert G. Gibby, Marion, Ind.; Dr. Jacob Cohen, Montrose, N. Y.; Dr. Leonard Ullman, Palo Alto, Cal.; Dr. Earl G. Guyer, Roanoke, Va.; Dr. Esther C. Toms, St. Cloud, Minn.; Dr. William Morris, Salisbury, N. C.; Dr. Robert B. Ellsworth, Salt Lake City, Utah, and Dr. John W. Chotlos, Topeka, Kans.

Known as the psychiatric evaluation project (PEP), the program has three purposes:

1. To determine the relative effectiveness of different treatment techniques, such as drugs, electroshock, group psychotherapy, individual psychotherapy, and the various activity therapies now in use in VA hospitals.
2. To determine the relative effectiveness of different hospital designs, staffing patterns, and program emphases in the treatment of psychiatric patients; and,
3. To permit valid estimates of the relative costs of the various elements in effective treatment programs.

Dr. Casey said the project will be a cooperative one in which all of the 12 participating hospitals already have agreed on a uniform approach to the various evaluation goals.

The project director is Dr. Richard L. Jenkins, a psychiatrist with headquarters in VA's Mt. Alto hospital in Washington, D. C. Dr. Jenkins formerly was chief of psychiatric research in the VA Central Office at Washington.

"When we complete the study in four or five years," Dr. Casey said, "we expect to have for the first time the solid factual information we need to guide us in developing the type of hospital programs which will provide the most effective treatment for the recovery or improvement of our psychiatric patients."

AWARD ANNOUNCEMENT

The question every active member should be asking himself is: "Who am I going to recommend for recognition through our award system?" This article will explain the type of award, the method of selection, the procedure for presenting candidates, criteria for selection, where to send the candidate's name and the time.

Awards Available

- 1) The John E. Davis Award—For outstanding service in the field of Physical Medicine and Rehabilitation.
- 2) The Achievement Award in Rehabilitation—For the person who contributes most to his own rehabilitation.
- 3) Annual Corrective Therapy Award*—For outstanding accomplishment in the field of Corrective Therapy.
- 4) Life Membership—Presented to those active members who have dedicated themselves and have made unusual contribution to the Association.
- 5) Honorary Award—This award is presented to those outside the membership who have given unselfishly of their time and resources in behalf of the Association to extend its efforts in rehabilitation of the disabled.
- 6) Fellow Award—This award is presented to active members who by outstanding scholarly contributions bring recognition to the field of Corrective Therapy.
- 7) Past President Award—An automatic award presented to the retiring president for services rendered during his term of office.

*The President is not eligible for this award during his term of office.

How to Prepare Materials on Candidates

- 1) Include the name in full with the candidate's present address.
- 2) A concise statement about his contribution and achievements in the specific area in which the award is given should also be included. It was recommended that this would be limited to one side of a typewritten page.

Since the John E. Davis Award is given in the field of Physical Medicine and/or Rehabilitation, the statement should include information about the candidate under the following headings: 1) Leadership, 2) Research and Clinical Practice, 3) Philosophy and Devotion to the total field, 4) Publications and 5) Other.

The Achievement Award in Rehabilitation is presented to the candidate who has contributed most to his own rehabilitation and thus has given inspiration to all. Briefs should include statements under the following headings: 1) Disability nature and cause and circumstances surrounding the incident, 2) obstacles overcome, 3) accomplishments since onset, and 4) inspirational value—effect on others.

Since the Annual Corrective Therapy Award is presented for outstanding achievement in the field of Corrective Therapy the following headings have been suggested for presenting material: 1) Clinical Program; 2) Original

Research; 3) Advancement of Corrective Therapy through a) leadership, b) publication c) Organization and administration, d) Association and e) other; 4) interpersonal relationships and 5) other. Example might include items such as professional bearing and prestige, personal sacrifice, public relations work, and development of equipment or ideas.

Now that the Fellow Award has been removed from the membership category it will be necessary to have statements comparable to the other awards. Under the following headings material on scholarly achievement will be presented: 1) description of contribution, 2) effect in the field, 3) scope of project or work and 4) other comments.

Although Life and Honorary Memberships and the Fellow Award are not considered competitive and are voted upon by the Representative Assembly and must pass by a two-thirds vote of approval, it is still necessary that a statement, not to exceed 200 words, be presented with the candidate's name.

Where to send Material and Names of Candidates for Awards

1) To the area chairman for awards. Listed below are the names, addresses and areas of the six representatives of the Awards Committee.

Area I—Mr. Sam Boruchov, 147-02 77th Road, Kew Garden Hills, New York

Area II—Mr. Chris Kopf, 2015 Birch St., Scotch Plains, New Jersey

Area III—Mr. Willis Denny, VA Hospital, Dublin, Georgia

Area IV—Mr. Leon Edman, 5912 Queen Avenue South, Minneapolis, Minn.

Area V—Mr. John Arena, VA Hospital, Houston, Texas

Area VI—Mr. Rudy Jahn, 6104 St. Clair Ave., No. Hollywood, California

2) To the Chairman of Awards—George V. Devins, 12591 Gilbert Street, Garden Grove, California.

3) To the Chapter President in each area.

Method of Judging Awards

When all candidates and the supporting statements for the J.E.D. Award, Achievement in Rehabilitation Award and the Annual C. T. Award are in, they will be circulated to the committee members with a score sheet attached to each statement. The committee members will score the candidates and return the statement and the score sheet to the chairman. The two candidates scoring the highest will then be presented to the Board of Governors for final vote. The score sheet will be completed by each member of the Board and returned to the Chairman of Awards. Winners will then be notified.

All other awards are voted upon directly by the Board of Governors after review by the President and Awards Committee. As previously mentioned, a two-thirds vote is necessary to approve the Fellow Award, Life Membership and Honorary Membership.

DEADLINE FOR SUBMITTING CANDIDATES
JANUARY 1, 1957!

SCHOLARSHIP ANNOUNCEMENT

The Association for Physical and Mental Rehabilitation Scholarship Committee has selected Robert A. Rule, of Springfield, Massachusetts and Robert J. James of Columbia, South Carolina, as the Scholarship award winners for the year of 1956. Both students are attending Springfield College Graduate School and are engaged in studies toward a master's degree in Corrective Therapy.

The Association hopes that through the establishment of these awards, it will help to stimulate a greater interest in Corrective Therapy, and thus contribute to the increase in number of qualified and well trained candidates in the field. A tremendous shortage exists in this field and every endeavor is being made to interest graduates in Health & Physical Education to continue their studies on a graduate level in Corrective Therapy.

It is not too early to submit your request for consideration of the Scholarship Committee for the 1957 Award. Every application will be reviewed by the Selection Committee and given due consideration prior to selecting the successful candidates.

ARTHUR D. TAUBER
Scholarship Chairman

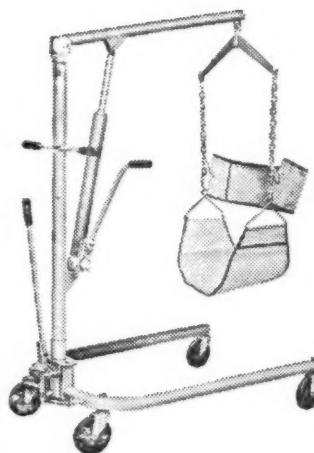
Scholarship Fund Aided by Hawaiian Luau

The Scholarship Fund of the APMR was increased by the sum of two hundred dollars, the proceeds of a Hawaiian luau sponsored by the California Chapter. The luau, which is a special Hawaiian feast, was held at the residence of Fred O'Banion of Van Nuys on May 12. Roast whole pig and barbecued elk and antelope were among the unusual dishes served at the feast.

Burr Zachary acted as chairman of the finance committee which included Joseph Tosches, Dick Fowler, George Devins, Dr. Carl Young, Tom Brown and Cliff Loose. Other chairman were John Aiau, food; Tom Meyer, beverages; Charles Curtis, entertainment; Sam Cohen, decorations; Rudy Jahn, furniture and Frank Simmons, protective.

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SELECTED ANNOTATED BIBLIOGRAPHY

Continued from the JOURNAL, 10:2:66, Mar.-Apr., 1956

SWIMMING

American National Red Cross (Washington 13, D. C.)

Swimming for the handicapped; instructor's manual. Washington, D. C., Am. Natl. Red Cross, c1955. 59 p.

Based on experience gained from a program begun in 1945 for handicapped veterans and servicemen, this manual includes background information on the general physiological and psychological values of such

a program, lists facilities and equipment needed, and gives information to help instructors understand and teach the handicapped. Described in some detail are specific programs for various conditions.

The appendix contains information on the operation of the program, pictorial display of joint motions, and a glossary. Valuable to the professional worker with the handicapped, as well as to swimming instructors.

TUBERCULOSIS—MENTAL HYGIENE

Warren, Sol L. (N. Y. State Div. of Vocational Rehabilitation, State Office Bldg., Albany 1, N. Y.)

Psychological aspects of tuberculosis. *J. Rehabilitation*. May-June, 1955. 21:3:11-13, 28-29.

Psychological factors are at least as important as physical and environmental factors in the onset, treatment, and after-care of the tuberculous. The writer discusses the psychological elements in tuberculosis rehabilitation—reactions to diagnosis, to hospitalization and treatment, and to adjustment after discharge. The role of the rehabilitation counselor in meeting the problems of the tuberculous patient is examined.

TYPING

Clifton, Earl (Manual Arts Therapy, V.A. Hosp., Long Beach, Calif.)

Typewriter reverse fed actuator for quadriplegic use, by Earl Clifton and John H. Wagner, Jr. *Arch. Phys. Med. and Rehab.* Aug., 1955. 36:8:503-506.

"A simple attachment for a standard mechanical typewriter is described which made it possible for a quadriplegic patient to turn the platen in a reverse direction. This has enabled him to operate the machine without assistance."—Summary. A mechanical description of the component parts of the actuator and its attachment to the typewriter is given.

WHEEL CHAIRS

The wheelchair. *Paraplegic News*. June, July, 1955. 9:80 & 81. 2 pts.

A brief history of the evolution of the wheelchair and some of the men who have been responsible for improvements in design. Special features recently made available in wheel chairs are discussed.

WORKMEN'S COMPENSATION

Aitken, Alexander P. (1180 Beacon St., Boston 46, Mass.)

Rehabilitation in workmen's compensation. *Am. J. Public Health*. July, 1955. 45:7:880-884.

"Recommendations are outlined here for the improvement of rehabilitation services for injured or ailing employees under the workmen's compensation system as made by a Subcommittee on Industrial Relations of the American College of Surgeons."

NEW BOOKS BRIEFLY NOTED

APHASIA

Taylor, Martha L.

Aphasia rehabilitation; manual and work book, by Martha L. Taylor and Morton Marks. New York, Institute of Phys. Med. and Rehab., c1955. 75 p. illus. Photo-offset.

"... the book is designed to instruct the untrained person in some of the basic techniques of administering speech therapy to aphasic patients ... full page photographs and accompanying flash cards constitute the teaching materials ..." Materials are suited for patients who have difficulty in saying, reading, or writing more than ten of the words on the basic list of 100 words. It should be a helpful reference for families of aphasic patients for home use. General instructions for working with the patient are given and nine steps in therapy are outlined.

The manual is based on research made possible by a grant from the Rockefeller Foundation and is available from The Institute of Physical Medicine and Rehabilitation, 400 E. 34th St., New York 16, N. Y., at \$3.00 a copy.

ARTHRITIS—BIOGRAPHY

Orme, Eve

My fight against osteo-arthritis. London, Faber and Faber, 1955. 105 p.

The author, an Englishwoman who particularly enjoyed riding and dancing, describes how, for years, she refused to accept the fact of her lameness and pain, tried a variety of remedies which she thought might relieve her condition—from quacks to faith healing—before she finally learned to control it by patient and persistent exercise. She devotes one chapter exclusively to the exercises and means of obtaining relief from stiffness and pain which she found helpful. For the lay sufferer from arthritis, this book offers a feeling of hope and encouragement.

Published by Faber and Faber, Ltd., 24 Russell Square, London W. C. 1, Eng. at 8s 6d a copy.

BONES—GROWTH

Pyle, S. Idell

Radiographic atlas of skeletal development of the knee; a standard of reference, by S. Idell Pyle and Normand L. Hoerr. Springfield, Ill., Charles C. Thomas, c1955. 82 p. illus. \$4.25.

The second in a series of several radiographic standards of reference for skeletal maturation, this atlas is based on studies of human growth and development initiated in 1926 by the late T. Wingate Todd, former Professor of Anatomy of Western Reserve University and Director of the Brush Foundation.

"Key osseous features illustrating the current developmental sequence on the surface of the knee joint at a designated skeletal age . . . are described and labeled on each plate . . . the method of constructing the standard of reference so that one series of standard plates is equally applicable for a boy or a girl is described in detail. A summary of the principal changes which can be expected to appear in sequence on the paired condyles of the knee during the osseous stage of its development has been presented by means of summarizing plates . . ."

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Limitation	Graduate work at accredited school.
Accredited Schools	University of California at Los Angeles State University of Iowa George Pepperdine College Ohio State University University of Kentucky Springfield College New York University Columbia University Nebraska Wesleyan University
Address Applications to	May be made by forwarding a letter prior to June 15, 1956, containing a curriculum vitae, three character references, three professional references and a college transcript.
Applications for Scholarships	Chairman, Scholarship Fund, The Association for Physical and Mental Rehabilitation, 1472 Broadway, New York 36, N. Y.

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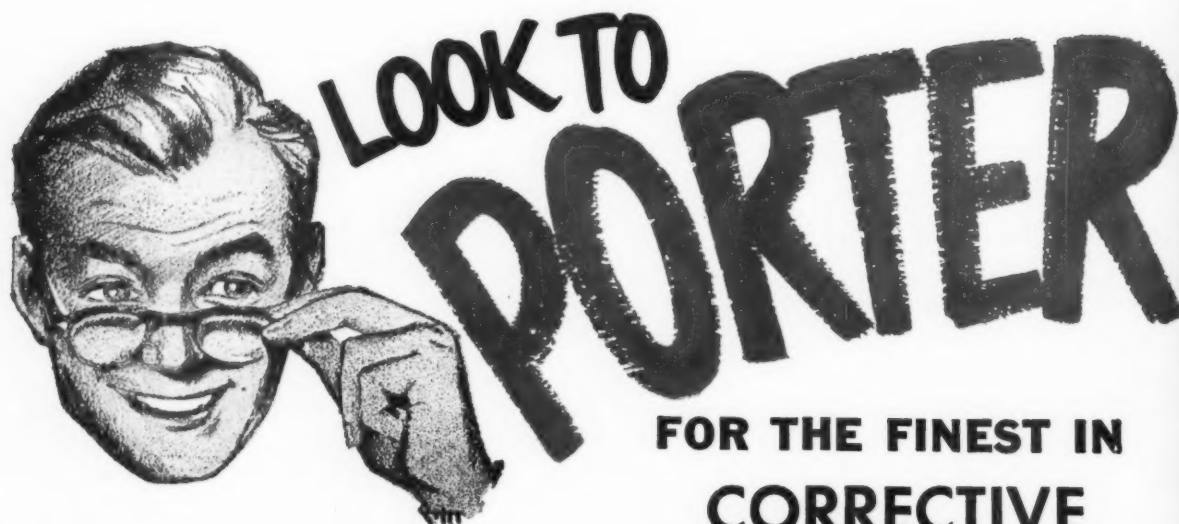
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